

AIRFIX magazine

March 1973

FOR PLASTIC MODELLERS

monthly 15p



in this issue

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Russian SU76/ Saab Viggen/ Model soldiers
Mosquito conversions/ German 7M85 gun



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For many modellers who paint Historex figures a common problem is finding coloured illustrations, and for newcomers to the hobby of model soldiers what exactly a particular figure actually looked like. There have been few illustrated books dealing with this subject and most uniform plates tend to be on the expensive side. Recently, however, there has been published two magnificent volumes dealing with the uniforms and arms of the Napoleonic period and covering the French, British, Prussian and various other allied soldiers. The book size is 10 x 8 and each contains 150 pages; 73 of them in full colour. In Vol. I, for example, of the 43 pages dealing with the French uniforms there are a total of 282 different figures, as well as diagrams of swords, muskets, pistols, caps, badges and artillery pieces, etc. Whilst the text is in French, this is no great drawback, as each figure is numbered and titled on the facing page. There is also a diagrammatic glossary of terms used. We are convinced that these books are of inestimable value to constructors of Historex figures and students of this period. We would like to quote a recent review from Airfix magazine which said: 'For anyone building Historex kits this book is a must.' Even the experienced Historex modeller will find it of interest, as many different uniforms are shown and these figures can be made up by consulting with the spare parts list. Five other volumes are also detailed below in the same format and series.

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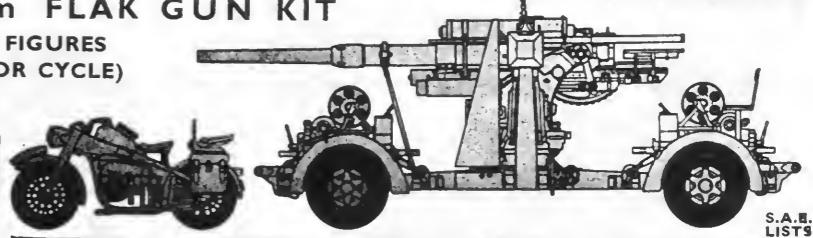
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AIRFIX magazine

March 1973
Volume 14 Number 7

Cover Picture

This striking photograph of a Chieftain main battle tank on manoeuvres last year was supplied by the Ministry of Defence (Army) Press Office. Unfortunately they were unable to supply any information about this particular vehicle but it appears that it has just been hit by a coloured smoke shell, presumably used to identify 'hits' in these large scale war games. However, we stand to be corrected on this point and if any reader has any more positive information we should be delighted to hear from him.

Colour transparencies of readers' models keep pouring in but unfortunately we are having to return many of these due to inadequate lighting, poor composition or simple out of focus photography. If you are thinking of sending in any transparencies—35 mm or 2½ inch size—please bear these points in mind and try to visualise what the model will look like on the cover when arranging your composition. But please, don't stop sending them in.

FOR PLASTIC MODELLERS

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The Viggen in action. Above showing the different panel 'textures' on the aircraft's under-surfaces.

Below another Viggen, equipped with Saab RBO5 air-to-surface guided missiles and rocket pods. Note black panel on fuselage top.



EVERYONE WHO SAW the Saab Viggen perform in the skies over Farnborough last year could not help being impressed by this supersonic strike fighter from Sweden.

The aircraft, however, is only part of a very sophisticated weapons system developed for the defence of Sweden's traditional neutrality in the '70s and '80s. Other components of this 'system 37' include power plant, airborne electronics, armament, ammunition, photographic equipment and ground servicing facilities. Except for the Multi-Rôle Combat Aircraft (MRCA), it is probably the most advanced weapons system currently being built in Western Europe. A creditable achievement for a country whose total population is no bigger than that of London.

The Swedish Air Board started preliminary studies on an aircraft to replace both the Saab 32 Lansen and 35 Draken as long ago as 1959. Detail design began in October 1962 with a full-scale mock-up being constructed some three years later. The first of seven prototypes took to the air in February 1967.

In many ways a revolutionary aircraft, it is a basic platform, which can be adapted for all-weather attack, fighter and reconnaissance roles.

The Viggen owes its versatility not only to its high performance and good flying qualities but also to its advanced electronic equipment. Whilst the construction methods remain conventional, an unusual Canard wing configuration gives the aircraft STOL characteristics to meet the requirement of being able to operate from emergency road airstrips

Terry Gander and Neil Crosby
in the air



A sophisticated Swedish bird—the Viggen

only 500 metres long.

Power is provided by a Swedish afterburner development of the civil Pratt and Whitney JT8D-22 turbo-fan, better known for its use in the Boeing 727. To enhance its landing abilities a thrust reverser is fitted, a unique feature for this class of aircraft. The work load on the pilot of this single-seat plane is reduced by use of computer which monitors and controls many of the functions usually carried out by an additional crew member.

Deliveries of the Viggen to the Swedish Air Force began in June 1971 and the first operational wing (F 7 attack wing based at Sätenäs) started converting to

the type in the late summer of 1972. So far, SAF has placed orders for 150 single-seat AJ-37 and 25 two-seat SK-37 Viggens. AJ-37 is primarily an attack aircraft with secondary intercept capability. Future versions include S-37 reconnaissance aircraft and JA-37 interceptor with variable intakes and a maximum speed in excess of Mach 2.0.

Because of its performance, the Viggen has attracted the attentions of a large number of potential buyers from overseas. Active discussions are known to take place with many of them, among the most noteworthy are Australia and the Netherlands. □



Above another fine in-flight shot of Viggens. Note positioning of the roundels. Below close-up shot of two Viggens equipped with Saab RBO5 air-to-surface guided missiles and rocket pods. Note the different textures on the natural metal panels again, which can be represented on the Airfix model by laying Metalskin or similar in a cross-grained 'patchwork' or even by applying silver paint with the brushstrokes running in different directions. Bottom on patrol (Saab-Scania photos).





Chris Spain

military modelling

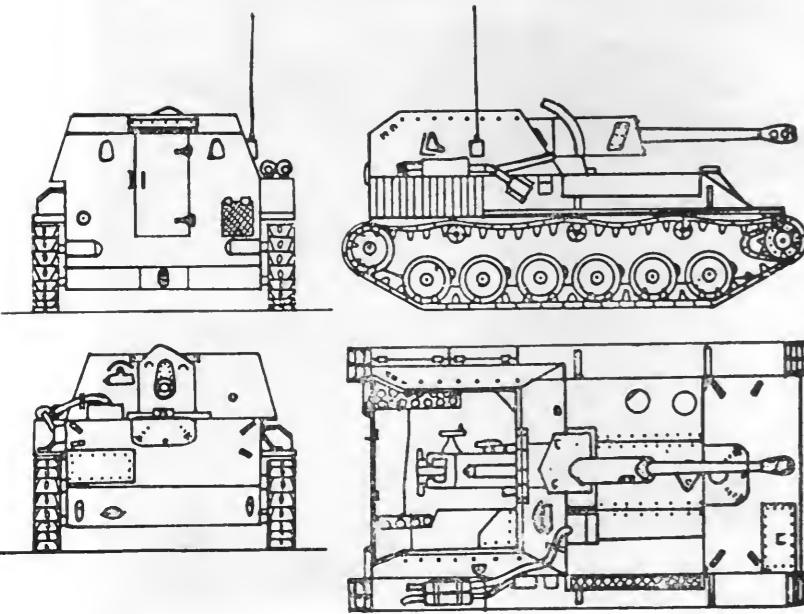
Soviet SU76 self-propelled gun

DURING 1941, BOTH the Germans and the Russians began to realise that they needed a self-propelled anti-tank gun to provide a mobile 'punch' for their armoured forces. The German answer, in the form of the Marder I, II and III, was to use foreign and obsolete light tank chassis such as the PzKpfw II and the Czech 38(t).

The Soviet solution was basically the same, but in their case the vehicle chosen was the light tank T70. This was the most recent development in a long line of light tanks. The Soviets were discovering at this time, along with most of the major nations, that the days of the light tank were rapidly drawing to a close.

The T70, with the turret removed and an additional wheel added to the lengthened chassis, was a comparatively easy conversion. A rear fighting compartment with an open top was constructed of slightly sloping armour plate. This was in many ways a better vehicle than its German counterparts as it had the advantage of a low silhouette, an easily accessible engine compartment and an excellent gun.

The gun from which the vehicle got its code number was the 7.62 cm field/anti-tank. This gun, probably the most advanced dual-purpose gun in the world during 1941, was available to the Russian



Left 1:76 scale drawings of SU76 self-propelled gun drawn by Chris Spain.

Above and right photos of author's model in 'natural' state and diorama setting.

Note Armetec chain on nose of vehicle.



Body

This is a comparatively easy hull to build if the plans are followed carefully. The only real difficulty is the engine grille on the side of the vehicle. I made mine by fixing Microstrip to a back plate. The spacing need not be too precise as the SU76 was a rather crudely made vehicle in real life anyway!

The stowage boxes are made either from laminated card or built up from 20 thou card. Although not of the same pattern, the stowage boxes from the T-34 could be used. The rear door can be modelled open or closed, as can the vision ports in the sides and rear.

The 7.62 cm gun

The gun is quite simple as it is merely an adaption of the Airfix Pak 40 7.5 cm gun from the Armoured Car kit.

The muzzle brake needs to be smoothed down to give a more rounded appearance. The recoil cylinder cover was made by wrapping Sellotape around the barrel and a piece of plastic rod above it. The breech mechanism can be left as in the Pak 40—although this is not quite right, in this scale the small difference is not noticeable. I fixed my gun solid but it could be made to elevate and traverse if a simple cradle was made.

Painting

I painted my vehicle in the typical Soviet dark green. This colour varies considerably from period to period and even vehicle to vehicle, so almost any green is acceptable.

As an alternative, the model could first be painted green then overpainted with white. This can be done very, very irregularly, in fact the running gear and the lower hull can be left green. The tyres and inside the engine grille is black and the exhaust pipe Humbrol 'track colour'.

The vehicle at Bovington on which the plans are based has the interior painted white, but whether or not this was done later, I do not know. However, white was a common colour for AFV interiors.



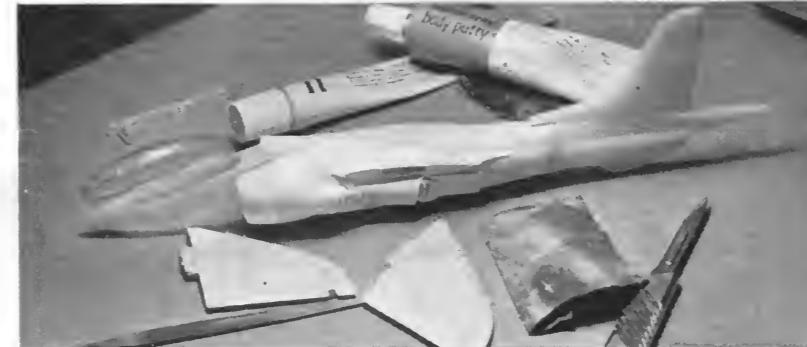
AIRFIX magazine

Twin-seat Harrier

Modifying existing 1:72 scale Harrier kits with AIR Conversions parts by Alan W. Hall



The basic Harrier fuselage is assembled, left to dry and then has the nose and tail removed with a fine toothed saw. By using a knife and file a large slot is cut in the top of the fuselage aft of the foremost cut line in order that the new kit parts can fit in place.



Above both new parts of the fuselage have been added and body putty has been applied and rubbed down on the rear section. The air intake bulges of the (Frog) kit, which are slightly out of scale, are added to the forward fuselage section so that no additional filling or sanding is necessary. Left a hole is drilled in the fuselage under the tail unit to take the tailplanes. These are seen being added as the picture was taken.



March 1973

THE TWO-SEAT version of the RAF's VTOL strike aircraft has presented many problems to the keen conversion modeller. The new shape of both the nose and tail sections are complicated and therefore the arrival of an injection set of conversion parts is very welcome.

AIR Conversions is a fairly new company on the market and they have already produced a two-seat version of the Hunter in polystyrene to go with the Airfix kit.

There are a mere four parts included in the Harrier conversion kit, two front fuselage halves, a solid rear fuselage and a canopy. These are intended to fit the Frog model of the aircraft but they can be adapted to suit the Airfix version (the most accurate of the two) as well.

My photographs of the model being built show the various stages involved. Polystyrene cement rather than impact adhesive can be used throughout and the fit of the parts is excellent.

Only one small difficulty is apparent when fitting the parts onto the basic kit and that is that the rear fuselage has a slight longitudinal warp which makes the lining up of the nose, centre fuselage and tail rather difficult. The rear section is, in the two kits I have studied, slightly bent and although the fault is not recognisable when the model is complete it can be seen if viewed from head-on and like all discerning modellers I am always aware of the problem although other viewers may not see it unless the fault is pointed out to them.

The basic parts of the kit are accurate though I found that an important omission has been made in the rear of the canopy area. Here two air intakes situated on both sides of the fuselage just aft of the canopy have been missed off and as these are fairly large they cannot be ignored. The matter is soon put to rights by cutting up some small pieces of scrap plastic and filing them to shape before placing in position.

Markings for the model came mainly from the Modeldecal sheet No 11 which depicts a GR I Harrier. I chose the No 20 Sqn insignia and was able to adapt the existing Frog kit decals to provide the serial plus a few small items from the Tamiya Harrier decals.

The AIR Conversions Harrier T 2 costs 60p and is well worth the money. Apart from its minor faults that can either be left or are easily overcome it has no problems and is an excellent choice for a beginner to the art of converting models as the work involved for the considerable change in appearance is simple. I can certainly recommend this kit as being a considerable step forward for the hobby. □

The completed model of the AIR conversion to the Frog Harrier. The Airfix kit can be used for this conversion but the work is slightly more difficult. The aircraft is completed as a Harrier T Mk 2 of No 20 Sqn.

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squadron codes

and colours
1939-1956



Part one of this major new series from Michael J. F. Bowyer

'HAVE YOU BEEN to Duxford lately? Guess what? The Spits of 19 Squadron have lost their tail squadron number and—I know you won't believe me—are wearing large grey letters. Each kite has two letters the same (WZ) and it also carries a single letter which probably identifies the individual aircraft. Anyway I thought you'd be interested.' Thus spoke my excited friend on March 14, 1939. Next day I took a look myself. 19 Squadron indeed was 'coded' WZ.

A quick tour of the East Anglian aerodromes revealed more such markings, although even then there were a number of aircraft still in the pre-Munich markings. Then, as now, changes in markings took place over quite a long period. Some aircraft had no squadron identity, some machines still exhibited squadron crests on their tails, the majority now had what we now know as Type 'B' roundels. But there was nothing like standard scheme in evidence, and the passage of aircraft from more distant bases only went to confirm this. Throughout that winter of 1938/39 the application of unit identity letters spread erratically onto most of the aircraft of front-line squadrons, and for anyone with an interest in aircraft markings collecting the letter combinations was an irresistible pursuit, even if it was rather naughty!

When the RAF mobilised in August 1939, a secret order was passed that, when the squadrons came to the highest state of readiness, the pre-war squadron letters should be changed to entirely new combinations. It was the intention that the letters

Shackleton 1 WG527 of 42 Squadron photographed in 1953 (Ministry of Defence).



would be applied as war broke out, and quickly. But some squadrons 'jumped the gun' and applied the revised codes some days before the war commenced. The idea had been that squadrons moving to war stations would do so with some air of unit secrecy, and that the enemy would find difficulty in identifying the squadrons. Possibly some element of security was achieved, but since most units did not move, and in any case they did not swap aircraft, it was still possible to identify some of the units.

The main purpose of the letters was to enable crews to identify other aircraft in their squadron, and for this reason the letters were applied as large as practicable. Ideally they would have read the same on both sides of the aircraft, but this was far from always being the case. Thus one was seeing in September Spitfires like QV-A whose letters read the same on both sides of the fuselage, and Wellington LN-P which read P-LN on the port side of the machine. But it seems to have been an absolute rule rarely if ever broken, that the squadron letters were never split. In precise style and size the letters varied considerably, there was certainly no norm. The colour of the letters, as ever, varied from station to station, and soon from squadron to squadron. Before the war some of the fighters were wearing codes which looked to be a shade of blue, but the wartime letters were now grey.

The first major change of unit lettering seems to have come when some of the Blenheim fighter squadrons, formed in the autumn of 1939, re-equipped with single-engined fighters. Not all of the squadrons seem to have changed letters, but some certainly did.

Another period of change occurred

among the Coastal Command flying-boat squadrons over quite a lengthy period of 1942. Some units then gave up unit letters, and not long after some acquired an identity number.

Letters were allocated by war theatres so that there could be some duplication of codes in use at the same time. Squadrons proceeding overseas usually retained their letters unless these were already in use overseas. There was, however, a little duplication of unit letters at home. This is evidenced by 234 and 627 Squadrons both of which used 'AZ', but in this case they belonged to different Commands.

In the early war years the letters 'I' and 'C' were left unused, but as the number of units greatly increased these letters came into general use. During late 1942 another extension led to the introduction of mixed letter-number identities, but 1A, 1B, 1C etc were not allocated, possibly because these combinations had for long been used by the large unit known as No 1 AACU.

Late in 1942 B-17s of the US 8th Air Force appeared wearing squadron identity letters. These formed part of the RAF system, and soon the Americans had taken over many of the possible combinations. For this reason, and for the sake of completeness, these letters are listed in the tabulations that follow in the new series we are introducing.

It seems likely that all possible combinations were allotted although no complete list of them seems ever to have been compiled. Squadron identity letters for some units have never come to light. Some units seem never to have worn their letters, particularly in the Middle East. Not all the flying boat squadrons seem to have displayed them. Some of the airborne squadrons wore them, then discarded them in 1943 in favour of individual letters sometimes duplicated as AA, BB, CC etc, before adopting new squadron letters in 1944. Bomber squadrons which were expanded to three Flight strength sometimes introduced a second unit identity, like 514 Squadron 'coded' J1 and A2. Others relied upon a 'bar letter' or some such similar device for the 'C' Flight aircraft.

In the rapidly changing post-war situation squadrons died and were sometimes reborn as a result of which some unlikely letter combinations appeared like A6 on 257 Squadron which was one of the few units to change letters during the war. Auxiliary fighter squadrons initially adopted letters in the 'RA' series changed to normal style codings when the squadrons were placed in Fighter Command in 1949. In 1950 fighter squadrons again started to wear colourful identity markings and in 1951 bomber squadrons discarded unit letters in favour of large serials and some colour trim, undoubtedly for security reasons.

Squadrons in Germany at this time adopted single letter identity and the same letters were carried by a number of squadrons making identity very difficult unless the aircraft had other identity features. In 1953 squadrons of the Tactical



Air Force began to exhibit squadron colours.

Last to retain unit letters were the aircraft of Coastal Command which were, for some years, marked in manner similar to those in Germany with single letter identity. In 1956 they shed this in favour of a revealing display of their unit numbers.

Training aircraft at all times fell into another category. Elementary trainers, Oxfords and Ansons, etc, usually wore an identity number between 1 and about 160 on each aircraft, or had a letter-number combination. Unit identity letters as such were not carried, although it was possible to identify some units by the style, positioning and colours of the markings. An exception concerned the squadrons formed as anti-aircraft co-operation units which did wear squadron letters. The anti-aircraft co-operation flights were probably all 'un-coded', but when they were raised to squadron status they acquired identity letters in the main system. Communication aircraft were usually 'un-coded', but after the war letters were allocated to Station Flights and a wide assortment of miscellaneous units. Whether many of these were actually worn seems still open to question. Some certainly were used.

Now, of course, letters are all but a

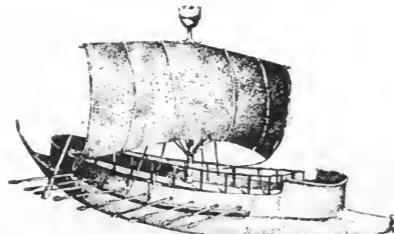


Neptune A:B-WX512 of No 217 Sqn (Ministry of Defence).



Top left Hurricane AY-WPG442, a rare picture of an aircraft of 17 OTU. Note the interesting extension of sky on the nose.
Above Lysander P9177-AG-W of an unknown unit stationed overseas. Possibly an Indian unit? (Photo S. J. Lambert).
Above left Hurricane II fighter-bomber (also known as the IIE) BE485-AE-W of 402 Sqn, with whom she served from October 1941 until written off in April 1942 (Imperial War Museum).
Left Beaufort 1 AW-T-W6523 of 42 Sqn in dark green-dark earth-sky finish with grey codes.

memory, although some helicopters have of late appeared wearing identity letters. Quite a large number of foreign air forces have made use of unit identity letters, some a hang-over from the time when these squadrons received their allocations in the Royal Air Force. Tail identity is now a widespread feature of many military American aircraft and who can say whether at some distant time the RAF may resort to using letters again?



Ron Wood

ancient warships

Number 7—the Greek pentere *Agammemnon*

During the war only a very small band of enthusiasts were bold enough to direct their attention to aircraft markings, but they all seem to have been quite intent upon recording squadron identity letters. Oddly enough quite a number of combinations that were accurately recorded seem to be, on the face of it, 'wrong'. But the anomalies where aircraft markings are concerned were then, as now, plentiful. I well remember looking at a Stirling coded 'AI' and on the strength of 1657 Conversion Unit. I was tempted to think it would become 'AK', but it never passed beyond the 'AI' status!

Since those long past days several attempts to list all the letters used have been made, but none has ever been complete. We are therefore beginning a series in *Airfix Magazine* which is an attempt to produce a complete record. Some of the combinations are well known, and where certain confirmation of the owners exists 'c' appears after the unit identity in the tabulation. Where uncertainty exists a query mark is added. Combinations used in the Middle East are marked ME, with FE for the Far East. Unless otherwise stated combinations were used in north-west Europe.

Letters applied by Commonwealth air
forces have been left out of the series.

For the most part the listing is based upon my own records, but I have had generous support from Roger Freeman whose research into the USAAF in Britain is surely unequalled. John D. R. Rawlings has dug into his records and Peter M. Corbell has, as ever, been able to add many items of useful information.

The listing in the series is now largely confirmed, but we are appealing to our wide readership to send in any known letter combinations—confirmed or otherwise—so that the series may be finally completed. Photographic evidence of lettering would, of course, be ideal. Once the main series is complete we shall turn our attention to training units and others and finally squadron colours and individual squadron markings over the years, from squadron formation to demise. But, first, let us tackle the big task of these September, 1939-1956 unit letters. And, please, let me hear from you if you feel any of the listing is incorrect, and if you can add anything to the given material. What we want is readership participation, and on a grand scale.

The first of the unit letters will appear in the April issue—Ed.

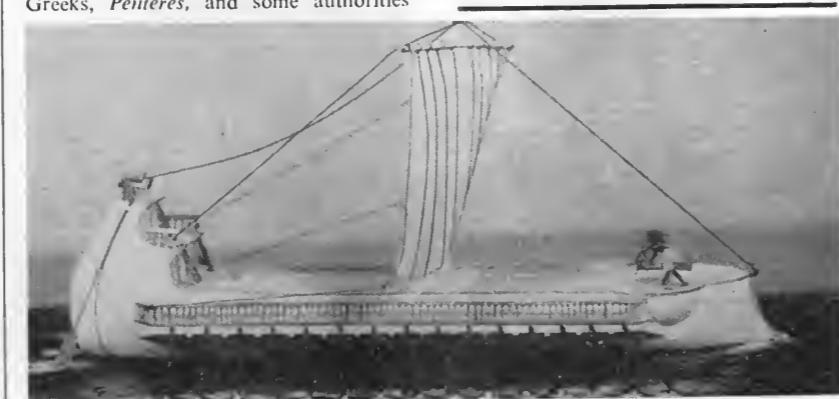
still maintain that this means that the oars were arranged in five horizontal banks, one above the other. But we have seen that the trireme, with three banks, is already a rather clumsy arrangement, and five banks must have been so cumbersome in operation that they became unworkable, although no doubt the experiment was tried at some time. We are left with the alternative solution then, that the 'five' in the words pentere and quinquereme refers not to the number of oars, but to the number of men

on each oar.

So imagine five beefy slaves (for by this time the rowers were slaves, since with the rowing benches below deck level, they could take no part in the fighting), sitting on a stepped bench, side by side, and all pulling on the same oar. The man on the inside, ie nearest the centre of the ship, can pull with all his force, like a normal rower, but the outside man, nearest the gunwale, can only pull a very short stroke. So when the inside man tires, they can all move along one place, and the outside man can take his place. By constantly shifting the work load in this way, high speeds could be maintained for quite long periods, and not just short ramming spurts. Rogers, in his book, works the whole thing out in horsepower, so if you're interested, read it!

Armament, you can see at a glance, has made a dramatic step forward. As well as carrying a ram, the use of which brings the ship into possibly uncomfortable proximity with the enemy, the pentre carries artillery; its fighting range is now brought beyond that allowed by a spear

Continued on page 368



AIRFIX magazine

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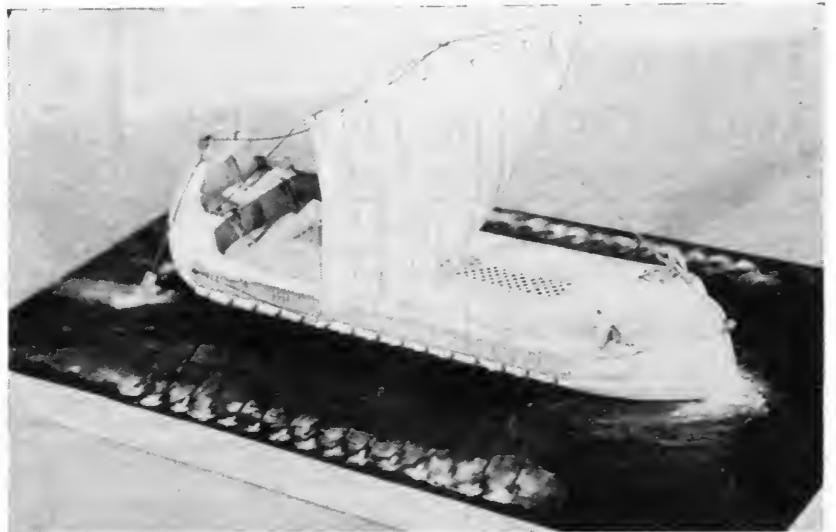
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March 1973



Continued from page 366

thrower or a slinger. The two catapults at the ship's bows could fire either flaming spears or, more likely, pots of Greek Fire. This was some mixture of tar, oil, and resin, put into fragile pots with a rag fuse like a petrol bomb. Fired at the enemy, it burst on the decks, and stuck. If you saw 'Ben Hur' and remember the sea battle, you know what it must have been like. Incidentally, another weapon, the Dolphin, had already been in use for some time. Not shown on this model, it consisted simply of a weight hung to the yard end. When this was vertically over the enemy ship, it was released, and would have had much the same effect as a cannonball.

But back to the model. A two-part moulded hull is needed. Carve a wooden block to the rather complicated shape of the hull, but notice that the two bulges for the firing platforms are not included in the moulding. They are built up afterwards from putty. Anyway, the sections and plans should make the block shape clear. When it's smooth, mould the two halves of the hull in 20 or 30 thou card. Trim them to shape, and then edge the top with thin 10 thou strip as shown on the finished drawing. Cement the two halves together, and add the bow and stern strips, cut and shaped from 50 thou card (Fig 1).

Cut the decks from 40 thou card to the patterns shown, and score on the planking lines. Remember the scale when you do this, and keep in mind that the planks were probably only about six or nine inches wide, so the scores should be about 1/32 inch apart. Cement the main deck in place *inside* the hull, level with the top. There is no rail of any sort on the main deck. Make the bulkheads from 40 thou card also, and add a 10 thou door to the lower, larger one. Cement this one in place at the rear of the main deck, then add the aft deck between the

shape can only depend on the exact shape of the bulges.

So cement the top and bottom parts of the outriggers in place, and then cut the ends from 40 thou card. Notice that these hang a little below the outrigger, to match the small brackets, which are also 40 thou. Cut these out as well to the pattern shown, and then cement them, and the end-pieces to the outriggers. Then cut the sides from 10 thou card, drill out the oar ports, and cement them on. The rails for these completed outriggers must now be made. The best way to get all the uprights the same length is to cut them all from a single strip the width required. Then cement them to a 40 thou square strip as long as the outrigger. The angled pieces of rail are made the same way, and then the rails are carefully cemented in place (Fig 7). Further lengths of the same railing are made for the upper decks. These are made in exactly the same way as the rest, except that the main rails are curved (Fig 8).

The steering oars are built up from thin rod and card, and held in place by half rings of thicker card (Fig 9).

The catapults are really like huge cross-bows, with shields to protect the gunners from arrow-fire. They are built up of rod, strip and fine sprue. The sketch should explain the details, and the finished drawings give the sizes (Fig 10).

Oars are rather thicker than those on the earlier models in the series; being pulled by five men apiece, they were probably as stout as telegraph poles, and held by handles rather than by their whole thickness. Blades are made by the now familiar method of squashing the ends with pliers. Cement the oars into their ports. Mast and yard are rod, the sail is paper, and the rigging is thread. All this should be familiar enough by now without me going into the details. The sketch (as I think I've said before) should make things clear.

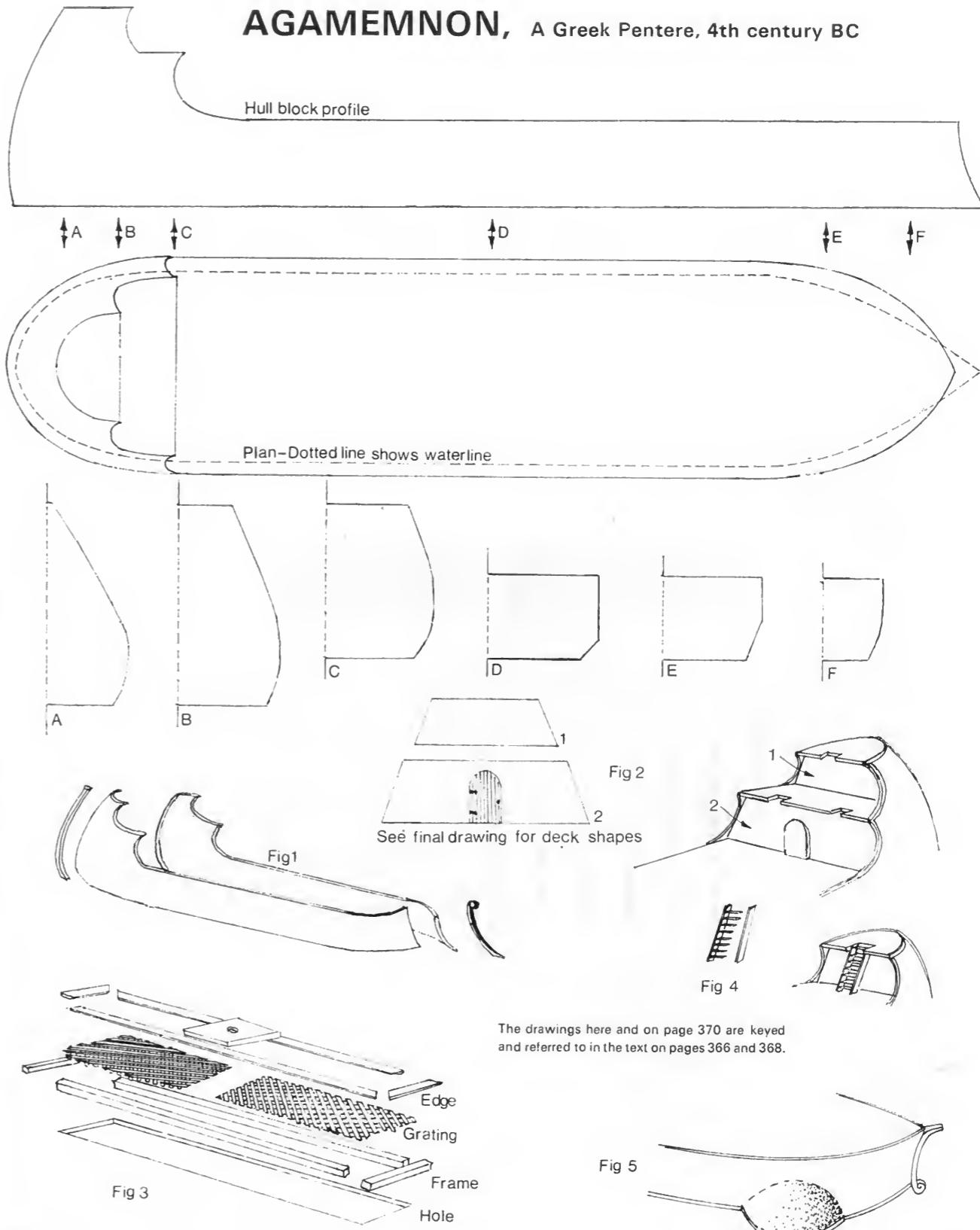
There are three ladders linking the various deck levels, made from Microstrip (Fig 4). Cement these in place when complete.

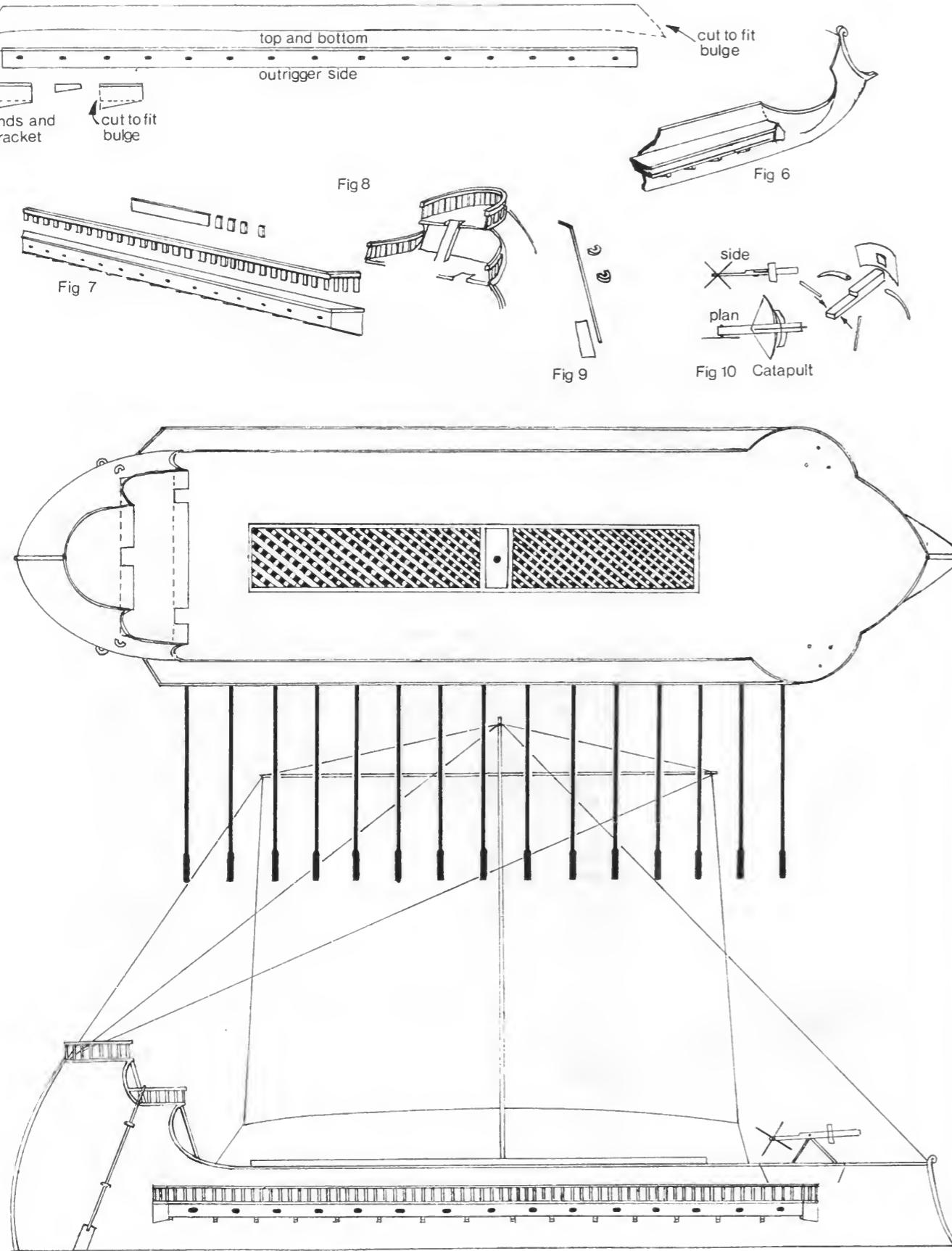
Now, the bulges under the firing platforms must be made. Plastic Padding is much better than body putty for this as it sets much quicker, and much harder, too. Just mix enough to make two good-sized blobs, one each side. The exact shape isn't too important, provided they are both the same. And remember that they are part of the hull, and built in the same way, and that the shape must reflect this (Fig 5).

Outriggers were built on to the sides of the hull of the boat to give the oars greater leverage. In this case, they were substantial enough to have walkways on their upper surfaces, with rails along the sides. Cut the upper and lower pieces from 30 thou card. Where the outline is dotted on the drawings, you will probably have to determine the actual shape by trial and error. Trimming the front ends bit by bit until they fit around the bulges as well as possible (Fig 6). The same goes for the front end-pieces. Their exact

shape will depend on the exact shape of the bulges.

AGAMEMNON, A Greek Pentere, 4th century BC





An unusual '75—the 7M85

One of the Wehrmacht's oddest improvisations modelled in 1:76 scale by Terry Gander

THE SEVERE conditions of the Russian Front during 1941 and 1942 brought home to the German Army many lessons. One was the necessity to operate away from the network of roads which are usual in Western Europe but almost non-existent in Russia. This absence of highways meant that nearly all Wehrmacht transport had to pass along rough tracks which became impassable in rain or after a thaw. At such times the handling of heavy equipment became a monumental task and in a retreat much of the German Army's heavy equipment had to be abandoned because there was no way of moving it across country quickly enough. The arm of the service to suffer particularly badly was the Field Artillery and especially the units using the 10.5 cm leFH 18/40 (10.5 cm leFH 18). This gun was the mainstay of the field artillery and roughly equivalent to the British 25 pounder. In 1941, most of the 10.5 cm leFH 18 pieces were still horse-drawn and had narrow tread spoked wheels and a heavy carriage, both of which dated back to the First World War. The awkwardness of this carriage was recognised and the gun was redesigned to place it on the lighter carriage of the 7.5 cm PAK 40. The shield was redesigned slightly and the wheels revised—some carriages even retained PAK 40 wheels. This new piece was called the 10.5 cm leFH 18/40 and entered service by the end of 1942.

As the war continued it became more defensive for the Germans as the Russian tank flood rolled on. All arms of the service had to have their own anti-tank defence and the artillery units usually used a 7.5 cm PAK 40. This added to the units' logistic load with attendant separate ammunition and spares problems. Thus the designers turned towards the idea of a dual-purpose anti-tank and field gun. There was little chance of a quick new design so makeshift policies were adopted. The 7.5 cm PAK 40 carriage was revised to increase elevation for indirect fire from 22° to 35°—this became the 7M59. But the strangest adaptation was the placing of the 7.5 cm PAK 40 on to the 10.5 cm leFH 18/40 carriage, which was an odd turn of fate for the PAK 40 derived carriage. This became the 7M85 and entered service in late 1944 in small numbers as a dual-purpose weapon.

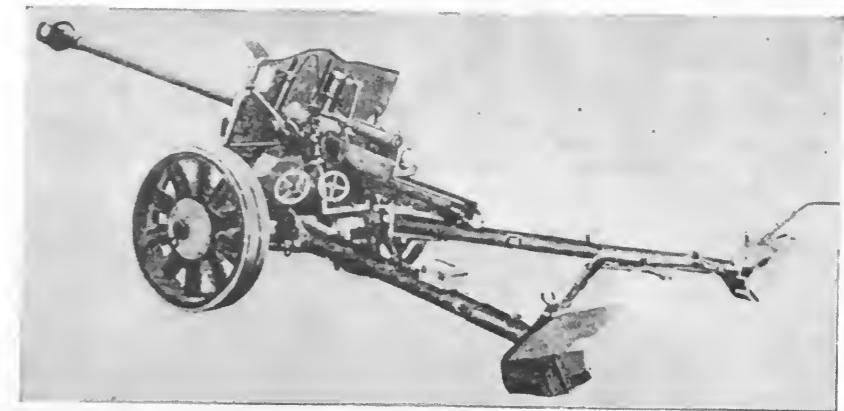
Top the only known illustration of the 7M85. Reproduced by courtesy of Mr H. L. Doyle. Right the completed model finished in olive drab.

March 1973

of four, costing 10p, the others being for the 5 cm PAK 38, the 10.5 cm leFH 18M and the 8.8 cm PAK 43/41. The wheel set is one of a wide range of parts and kits made by Mr Clark, but these kits are only available to MAFVA members. (Details of the MAFVA from Mr G. Williams, 15 Berwick Avenue, Heaton Mersey, Stockport, Cheshire.) If you don't wish to use these parts, scratch building is awkward and fragile. In fact the 7.5 cm PAK 40 wheels are a bit too small for the 7M85 but the end result isn't too bad.

Start the model with a Mierorod axle separating the wheels by 19 mm. Fit two 2 mm card strips 16 mm long and one 16 × 6 mm piece to form a box on three sides of the axle with the open side to the rear and the largest piece beneath. The trail arms are made from two T34/85 barrels cut to 35 mm long (from the muzzle end) and a slot cut into the breech end with a razor saw. Slide and cement these trails on to the 16 × 6 mm card at each side and, if spread, the trails should be 45 mm apart at the spade ends. The trail spades are cut from thin scrap card as per the drawing.

The 7.5 cm PAK 40 gun and mount come from the Airfix German Armoured





A later model of the 10.5 cm le FH 18 with more modern wheels in place of the earlier wooden ones. These solid rubber-rimmed wheels enabled the piece to be towed by motor vehicles, but the carriage weight and the narrow tyres restricted cross-country handling and led to the development of the lighter 10.5 cm le FH 18/40, and eventually to the 7M85.

Car kit and were left over from a Puma conversion. Assemble the gun parts 4 and 5, but the breech handle will have to be carefully cut off and turned through 180° and cemented in line with the barrel. The trunnions from the kit can be used after reshaping as per the drawing or new parts made from scrap. These can be cemented on to the axle box centre and the gun fitted. At this point the model looks nothing like a gun, but carry on!

The elevation cylinder on the right-hand side was an unmodified Tiger drive sprocket pin, but any similar item will do. Cement this to the right-hand trunnion. Sighting gear can come from any likely-looking parts from the 6 or 25 pounder kits and go on to the left-hand trunnion. The elevating and traverse hand wheels are missing from my model as I don't have any at present.

The shield shape can be cut using the drawing and the 'wings' bent back slightly. On to the axle box go two extra triangular pieces of card to simulate extra armour and then the shield can be cemented on to the trunnions.

The gun is almost finished apart from details. These consist of shield stays, two each side, from Micorod or 2 amp fuse wire. Fuse wire, 5 amp this time, is used for the trail handles. The box on the left trail is easily knocked up from a piece of scrap and the various cylindrical containers on the shield came from odd sections of sprue. A coat of Panzer Grey, or perhaps Olive Drab, along with breech detail in gunmetal, completes the job. The end result is a most interesting and unusual '75'. □

Details of 7M85

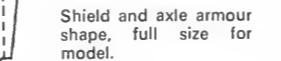
Barrel length:	320.1 cm
Rifled portion of barrel:	247.05 cm
Traverse:	30°30'
Elevation:	-5° +42°
Shots per min:	8 - 10
Length (Trails closed):	585.0 cm
Width (Trails closed):	211.0 cm
Height:	183.0 cm
Weight:	1,778 kg
Range (max):	10,275 m.



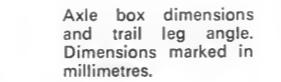
Right hand trail spade shape, right size for model. Left hand spade is 'mirror' opposite.



New trunnion shape.



Shield and axle armour shape, full size for model.



Axle box dimensions and trail leg angle. Dimensions marked in millimetres.



Above the model prior to painting. The trail handles are made from 5 amp fuse wire and the 'tubes' on the shield are sections of Micorod or sprue. Right the partially assembled model showing the trail leg angle and method of fixing the legs to the axle box. Note that the breech handle has been reversed.



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Part 9: Sopwith's classic and supreme—Camel and Snipe

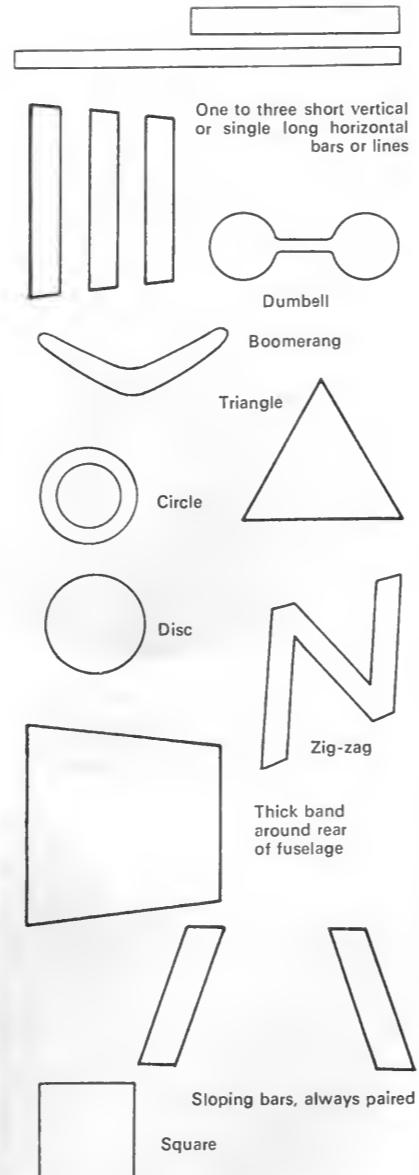
THE SOPWITH CAMEL has become the classic biplane fighter for it saw more air combat than any other biplane; the Snipe was the best and final Sopwith fighter to see action in the First World War. The one followed logically from the other in design on production lines and in service so that factory finishes and service markings were basically the same.

Camel

The Camel was developed and put into large-scale production by Sopwith and a number of sub-contractors in the first half of 1917 and was entering service in quantity in the Royal Flying Corps and Royal Naval Air Service in the second half. Standard armament was twin .303 Vickers machine guns firing through the propeller arc and the 130 hp Clerget was the standard engine. With longer stroke pistons power was increased and engines so fitted were known as 130 hp Clerget (LS) later re-named

140 hp Clergets. W. O. Bentley of ear fame, co-opted into the Navy, designed a 150 hp rotary engine for the Admiralty (designated AR1—Admiralty Rotary No 1) which was changed to BR1 (Bentley Rotary No 1). After initial deliveries with Clergets of both versions most RNAS machines had BR1s and eventually some went to the RFC. Bentley's next successful venture, the 230 hp BR2, became the exclusive standard for Snipes, while 110 hp Le Rhone engines were also used on Camels, particularly in Home Service units and also the 150 hp Gnome which was planned to be the standard power unit for Camels going to the American Expeditionary Force in late 1918.

A Ship's Camel, designated 2F1, rigged and equipped differently, with the BR1 engine as its standard power unit, was a naval fighter and is thereby outside the scope of this survey. The standard was the 1F1 Camel, or F1 for short.



Simple geometric shapes in white used for operational unit identification on Sopwith Camels, marked on port and starboard sides of the fuselage (Drawings by Peter G. Cooksley).

Boulton & Paul, who built 1,550 Camels at Norwich, marked serials in a box on the fuselage in typical Sopwith fashion, but in addition repeated the number on the rudder in the fashion shown, outlining the digits in white on the blue (leading) and red (trailing) sections. On delivery Camels were as shown above left. In squadron service they would most likely bear one of the symbols drawn, but if used by an instructor, they were apt to be embellished to the degree shown left! (J. M. Bruce/G. S. Leslie collection).

AIRFIX magazine

The F1 was ordered both by Admiralty and War Office, those to Admiralty contracts having N prefixed serials and being delivered only to naval squadrons. But the naval squadrons using the F1 were brought into RFC Wings on the Western Front and supplied by RFC Depots so that they acquired RFC Camels with B, C, D, E and F prefixed serials.

Finishes undoubtedly varied, but initially Sopwith set the standard out in their drawing D2037 dated 5.2.17 which instructed as follows:

Covering and doping

1. Irish linen (flax) to be used.
2. Underside to receive five coats of Cellon dope and to be varnished (in effect natural colour).
3. Topside (this meant upper and side surfaces) five coats of Cellon dope and two coats of PC12 Pigment Brown.

As a naval contractor Sopwith specified the PC12 instead of the normal khaki-green PC10 but the latter was used by some of the sub-contractors. However, the majority were probably PC12. Sopwith did mark a plate on the fuselage side, giving an inspection reference number and a doping scheme.

The most consistent Service markings borne by Camels were those given in service to squadrons on the Western Front. The markings used were always in white on the PC10/PC12 khaki-green/chocolate brown surfaces and changed periodically as GHQ, RFC in the Field reviewed the system.

Most significant of all unit marking changes came on March 22 1918. The day previously the Germans had launched their great and last spring offensive of the war, compelling a hasty re-deployment of units. To prevent enemy intelligence assessing the British order of Battle by identifying squadrons from their markings, secret orders went out for all bomber and reconnaissance squadrons to expunge their unit markings and for fighter squadrons to change theirs to a new schedule.

It was appreciated that in the intensive period of operations, it might not be possible to effect the change immediately and that it should not interfere in any way with operations, but at least one flight a day should be changed, which meant that by the morning of March 26 the change-over was planned to be completely effected.

Active squadrons using Camels with details of their markings follow:

No 3 Squadron RFC/RAF used Camels for fighting and strafing on the Western Front from September 1917 until the Armistice with three changes of markings. There were two bars aft of the roundel until December 23 1917 when it changed to one bar each side, and finally in March 1918 to two bars at rear of fuselage. It is doubtful if any one Camel had all three changes due to the high rate of attrition; the unit frequently tangled with the Richthofen Circus and no less than three (B7393, C1562, D6439) fell to von Richthofen himself.

No 28 Squadron RFC/RAF was a training squadron at Gosport until July 23 1917

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Ruston Proctor built 1,573 Camels at Lincoln and general finish was a sober PC10 with serial in black on the fin in the manner of B2419 shown at Wye in October 1917 when No 65 Sqn was forming up to go to France. On arriving at the Front, the allotted markings and individual letters were applied as shown on B2458 (Frank Yeoman & H. H. Russell collection).



first Home Defence Camels in August 1917 after a spate of German daylight raids had forced this issue. Since aircraft patrolled in pairs, fins were painted white for night visibility. Some aircraft bore large identification figures aft of roundel, which were repeated on fuselage decking. Separate flight markings may have been used for a period. **No 45 Squadron RFC/RAF** used Camels from July 1917 to February 1919 on the Western Front except for a period in Italy December 1917 to September 1918, marked with an unvarying white dumb-bell on fuselage sides aft of the roundel, and on fuselage decking. Individual letters were allotted to flights as follows: A to F 'A' Flight, G to M (less I) 'B' Flight and N to S 'C' Flight. Individual letters were repeated on top wing offset to port. At one period A of 'A' Flight was B6383. **No 46 Squadron RFC/RAF**. When Camels were first received in November 1917 on the Western Front, two thin white bands were marked around the rear fuselage in the same manner as with their former Pups, but on December 23 this was officially changed to a single 18-inch white

band around the rear fuselage. With the March 1918 changes, a line was drawn along the centre of the fuselage decking and on the fuselage side, broken only by roundel and individual letter or figure. 'A' Flight used letters at the start of the alphabet and 'C' Flight used letters at the end, while 'B' Flight used figures 1 to 6. Letters/numbers were repeated in white on top wing, offset to port or starboard, and often also marked in black on both sides of the bottom wing undersurface. Examples are C3375 G and F1971 V.

No 50 Squadron RFC/RAF used Camels such as B7445 on Home Defence, February to November 1918, but used no known distinguishing markings. A Snipe was allotted for night fighting trials.

No 51 Squadron RFC/RAF used Camels during 1918 from East Anglian fields for protection of the Midlands and also acted as a night flying training squadron. No known special markings.

No 54 Squadron RFC/RAF acquired Camels for fighting and strafing on the Western Front from December 1917, using first a white bar in front of the roundel, changing to a white zig-zag aft of it in March 1918. It was one of the few squadrons in France to use Le Rhone-engined Camels, an example being D6569 lost 21.4.18 near Bailleul in combat with eight Fokker Triplanes.

No 61 Squadron RAF received Camels late 1918 for Home Defence.

No 65 RFC/RAF went to France October 24 1917 with Camels for offensive and line patrols and shot down 219 enemy aircraft of which 136 were confirmed destroyed. Their Camels had simple markings of a horizontal white line down the fuselage broken by roundel and individual letter aft of it. In March 1918 the marking changed to a vertical bar each side of the roundel. Camels known to have been used are B7227, C8272, C8280, D1811, D1903, D6562, E7217.

No 66 Squadron RFC/RAF. Like its earlier Pups, this squadron's Camels, received in October 1917 on the Western Front, had a white horizontal line down the centre of the fuselage side. In November the squadron moved to Italy where additionally a vertical bar was marked forward of the roundel. Individual letters were carried by squadron aircraft B6424 'P', B7353 'L', B7389 'T', D8101 'P'.



Typical of the way instructors embellished their machines in contrast to the sober finish of squadron Camels. B3926 was one of over 500 built by the parent firm and the serial and 'Lift here' markings with arrows are in strict 'Sopwith fashion' over the general finish which was in dark brown Novellon dope. The unit is not known but the pilot shown is D. M. B. Galbraith, DSC and Bar, an ace with 14 victories who, after leaving No 8 (Naval) Squadron, went to No 204 Training Depot Station, Eastchurch. (Canadian Archives and Frank Yeoman collection).



No 70 Squadron RFC/RAF. Going straight from 1½ Strutters, No 70 used Camels on the Western Front from July 1917 to February 1919 bearing first a white zig-zag aft of roundel, changing to three vertical bars in the same position during March 1918. Examples of squadron Camels are B2311, B2341, B2530, B5598, C1700, C8204. Individual letters were marked forward of the roundel with A-F allotted to 'A' Flight; G, H, J, K, L, M to 'B' Flight and N-S to 'C' Flight. Snipes inherited the three-bar unit marking after the Armistice.

No 71 Squadron RFC (No 4 Australian Flying Corps). Manned by Australians, this squadron took Camels to France in December 1917 symbolically marked with

Snipe fashions. E8015 has been repainted in service and marked with the inward sloping bars of No 208 Sqn. It can be seen that the 'E' is repeated on the top wing. E8189 is in its original Sopwith finish and has been given an individual number in No 4 Fighting School. Note the variations in Snipe fin and rudder shapes (via Frank Yeoman).



a white boomerang on the fuselage side and decking. In the March 1918 security change the squadron were allotted a white bar in front of the roundel. Individual markings varied according to flights, 'A' Flight using A-H, 'B' Flight 1-8 and 'C' Flight S-Z. Up to March 22 these individual letters/figures were forward of the roundel, and after that date aft; throughout the whole period they were repeated on the top wing off-set from the centre section to starboard. Examples are B7412, C8226, D1924, E1410, F1415. Snipes started to replace the Camels in September 1918 and were similarly marked; examples are E7358, E8022, E8088, F2351.

No 73 Squadron RFC/RAF. To France with Camels in January 1918, this squadron's three distinguishing white bars aft of the roundel changed to two in March 1918. Camels used by the squadron, which moved base on average once a month, included B2521, B5418, B5590, B7286, D1776, D1841, F1917.

No 78 Squadron RAF received Camels in July 1918 for Home Defence based on airfields in South-East England, using Camels (e.g. B3752, D6401, D9459) without any special unit markings, but B9309 with the squadron bore the presentation name 'RHODESIA'.

No 80 Squadron RFC/RAF going to France in January 1918 had Camels with a white band around the rear fuselage which remained the unit marking until Snipes were received in December 1918. Representative Camels were B4619, B7165, B9173, B9201, C1647, F1969.

No 112 Squadron RAF used Camels and Snipes 1918-19 in the London Defence rôle without any standardised embellishment. Examples are Camels D6403, D6405, D6415, D6664, and F4175 built up by the squadron from salvage. Snipes included E7429 with the squadron mid-1919.

No 150 Squadron RAF in Macedonia had mixed equipment 1918, and since this squadron had the only Camels on the Front, no distinguishing markings were necessary. Squadron Camels that shot down enemy aircraft were C1586, C1587, C1598, C1599, D6549, D6551.

No 151 Squadron RAF was formed with night flying Camels in June 1918 and went to France as the first night intruder squadron; 22 of its 26 victories were twin-engined bombers. No special markings were used on their Camels which included C6725 and F1885.

Nos 152, 153, 188 Squadrons RAF. Three follow-up night-flying Camel squadrons were No 152 which reached France shortly before the Armistice with Camels that included F2152. No 153 formed as the war ended and was soon disbanded and No 188 was a night flying training fighter unit using, among others, Camels C6738 and F2107.

Due to lack of space in this issue we have been forced to leave out of this article those ex-Naval Squadrons using Camels and Snipes. These will appear in April. □



charge of the light brigade

Captain Louis Edward Nolan by Sid Horton

CAPTAIN NOLAN WAS the carrier of that ambiguous order which started the 'Brigade' on its fatal ride on the morning of October 25 1854. The romantic legend which has surrounded him is ably dispelled by H. Moyse-Bartlett in his most authoritative book—*Louis Edward Nolan and His Influence on British Cavalry* which is also helpful in explaining the character of this superb horseman, dedicated believer in the use of cavalry and author of two books on the training of cavalry horses and tactics.

One myth which, I think, should be explained here is that Nolan never served with the 11th Hussars, as in the Tony Richardson film of the 'Charge of the Light Brigade' but in the 15th Hussars, and was Airey's ADC in the Crimea. It was thought by some that by his action of riding across the front of the Brigade Nolan had realised that they were going down the wrong valley and was trying to turn the Brigade into the South Valley. It will never be known, however, because almost the first shot that was fired killed

him. A large piece of shrapnel sliced into his left breast exposing his heart. The knees of a well trained horseman kept the body upright in the saddle. His horse wheeled round and the shrieking figure of Nolan rode, dead, through the ranks of the 13th Light Dragoons.

For this conversion you need an Airfix 54 mm Hussar figure and the horse from the new Scots Grey.

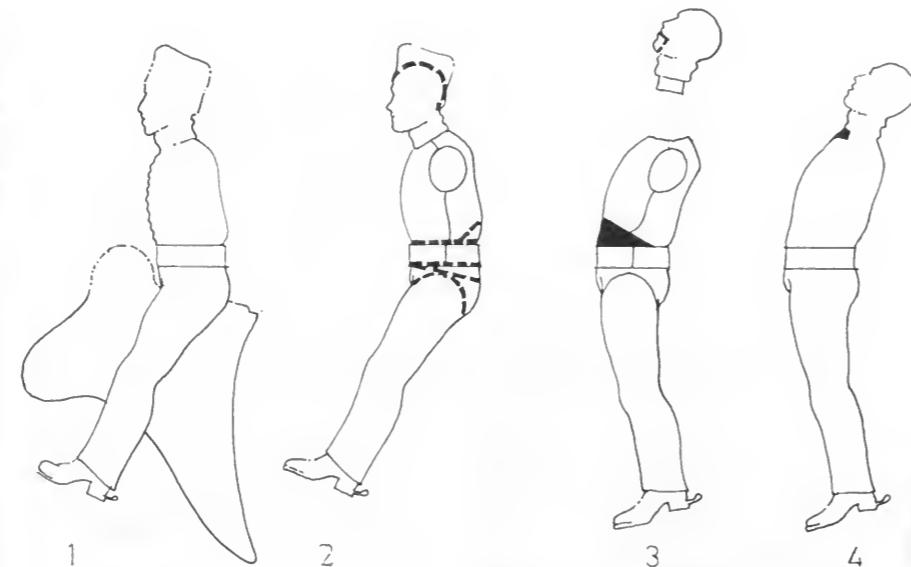
Due to the recent outcry against Carbon-tet in the modelling press, for reasons I knew nothing about, I decided to find an alternative, and chose an American product called Squadron Green Putty. Visitors to the Model Engineer Exhibition in London will have seen the wide uses to which this compound can be put on the IPMS stand. UK agents are Modelmark Hobby Products of 8 Mighell Avenue, Redbridge, Essex, who stock tubs at 50p each including postage.

The head

Take the head from the Hussar kit. The busby is carved away to a bald headed



Right 1 the basic hussar figure. 2 cut as shown by the dotted lines and described in text, taking care to preserve the waist belt. 3 the legs have been repositioned and the torso bent back, the gap left in front being filled with putty. Note saw marks on head for re-positioning jaw. 4 the figure as it should appear finally before detailing the frogging, etc.



shape and, using a sharp blade, follow the line between the lips making a deep cut, then down from the corners of the mouth like a ventriloquist's doll, leaving the lower jaw completely separate. This can then be cemented in place in any 'open mouthed' position which suits the figure you are making. The slight gap down each side and underneath can be filled with body putty and sanded to shape.

The wind-blown hair of this figure is made from Green Stuff applied with a needle in small amounts and the texture of hair is built up gradually. The length of sprue beneath the collar is shortened by at least half. Now lay to one side.

The body

This comes from the Hussar kit. First cement together the two body halves and, when dry, all the decoration and frogging are carved away and sanded down (more about the new frogging later). Then, using a razor saw and following the line above the waist belt, carefully saw right through the body. A 'vee' is then cut from the back bottom of the body as shown in the drawings, so as to allow the body to lean right back in the saddle, and cemented back onto the waist belt (which has been carefully preserved). The head can now be cemented in place following the curve of the body.



Close-up of the figure's front showing the frogging and buttons, all from stretched sprue and plastic rod! The face has been slightly retouched in this photograph but having seen the real thing we can assure readers that it is quite magnificent. Aim for a very pale coloured basic flesh tone.



double, so 38 lengths of stretched sprue are needed. Using Mek-Pak, or a similar liquid adhesive, cement the sprue in position in two with a slight gap between them and the next two. It is almost impossible to measure the distance between the frogging on this scale. It must all be done by 'eye'. I was lucky getting all 19 rows evenly spaced but practice on a piece of scrap card first will help give an idea of the spacing required. Don't worry about the edges finishing evenly as these can be trimmed when dry. Also, when dry, a small amount of frogging is cut away down the centre line and green stuff added and worked up into a furlike texture, and along the bottom of the pelisse and the cuffs.

The buttons present another problem. I overcame this with Slaters Rod from their assorted packet. Choose a thickness which looks right, end on, to just cover two lines of stretched sprue, then slice through the rod so you have circular sections. Make 95 buttons, there being five on each row of frogging. These are cemented in place using Mek-Pak. It's a long job but the results are, I think, well worth the time it takes. After all the buttons and frogging have dried thoroughly, wash over with another coat of Mek-Pak to seal it all. Down the left-hand side of the centre fur you will notice a line of loops. These were usually looped through one another, which makes them easier to model. To achieve this, I plaited a piece of sewing thread (the invisible type is best). This can then be cemented in place with a five minute epoxy adhesive. The cap (or in this case shako) lines, while it is not being worn, seem to be wound round the neck a number of times.

Pouch and pouch belt

The pouch from the kit is too thick so sand down by half from the back. The belt is made from the plastic card supplied with the kit, 2 mm wide going over the left



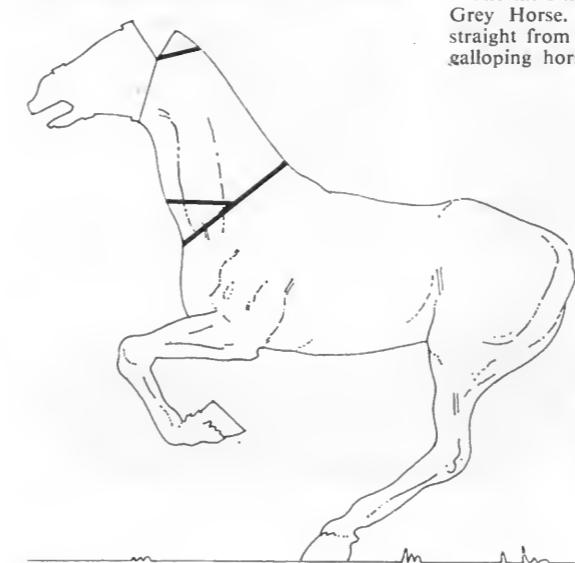
shoulder. The decorative plate and crown can be painted on or, as I have done, cut from 5 thou plastic card. The arrows from stretched sprue cemented in place with Mek-Pak and while still soft the ends flattened to make flights. The retaining chains, again, from stretched sprue.

Sabretache

I prefer the one from the Scots Grey kit. A little work has to be done to the bottom of it to give it the correct shape. There are excellent illustrations of both the pouch and pouch belt and the sabretache in Almark's *British Hussars*, by A. H. Bowring.

The horse

The kit I have used was the new Scots Grey Horse. This can be left as it is straight from the kit as it is an excellent galloping horse. But I altered it slightly



Alterations to the neck of the horse (same size for model). Far left the final position of the figure on the horse which should be aimed at.



only at the neck (see drawings). After all the hard work on the frogging this work must be easier, otherwise, I am afraid, I'll become bored with it. Saddle, etc, is straight from the box, as there is evidence that Nolan rode a trooper horse of the 13th Light Dragoons

Painting

My reference for the 15th Hussars of this period was incomplete, but according to Almark's publicity this should soon be remedied. The shako, or in this case, the pill box, before it was lost, was scarlet. The jacket, pelisse, and trousers were all navy blue with gold lace, all fur was black, the pouch belt, pouch and sabretache, slings all scarlet, trimmed with gold lace. The decorative plate and retaining chains were silver. The horse blanket was mid-grey, all leather work brown with brass buckles, etc. The cloak and valise were navy blue. □

Mosquitos galore

First of two articles on variants modelled from the new Airfix Mosquito kit by Bryan Philpott

SERIOUS MODELLERS have waited many years for a good accurate 1:72 scale kit of the legendary de Havilland Mosquito, and their patience has now been rewarded by Airfix whose latest offering has no resemblance (except in name) to the earlier kit of this aircraft.

Crisply moulded, an abundance of fine surface detail, a selection of parts for three versions, plus a superb sheet of transfers, puts this kit into the top league and opens new doors for the conversion addict. On the debit side, and there always seems to be one, the Airfix rivet producer seems to have been on time-and-a-half around the engine nacelles and tops of the wing centre-sections, and these overscale additions must be removed or the whole finish of the model is marred. A very minor error has occurred in the line of taper on the fuselage but this may be due to demands of economical tooling and is not an error that is likely to detract from the completed model.

With an aircraft such as the Mosquito, that served in practically every rôle possible, from bomber through to VIP transport, and night fighter to trainer, the conversion possibilities are legion. Some of these are of a very minor nature whilst others require a little more skill and thought. It is our intention to outline just a few, going into precise detail of the work involved only on those where this may not

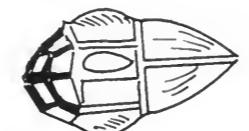
be so obvious to the less experienced modeller.

Before turning to the work bench it is worth taking a very quick look at the history of the Mosquito which, alongside the Spitfire, Hurricane and Lancaster, is perhaps one of the most well remembered aircraft from the Second World War. Conceived in 1938 as a bomber and allocated the type number DH 98, the Mosquito owed a great deal of its initial development to the famous Comet racers, whose graceful lines can be detected in their more warlike cousin.

The idea of an unarmed bomber, constructed mainly of wood, and relying on speed and manoeuvrability to avoid interception, was not one that greatly appealed to the Air Ministry in the early days of the Second World War. But fortunately Air Marshal Sir Wilfred Freeman, who had already foreseen the Mosquito's potential, persisted in championing the aircraft on every possible occasion and backed by the unshakeable confidence of Geoffrey de Havilland—who proceeded with the type as a private venture—official recognition was achieved. This came in the form of an initial contract for 50 bombers placed in March 1940.

From these small beginnings emerged an aircraft that captured the hearts of a nation as well as those who flew and operated it.

General view of the completed Mosquito PR XVI model with new glazed nose and altered engine nacelles (see drawing below). The new Airfix kit lends itself to any number of conversions, and those covered in these two articles only scratch the surface of what is possible.



Canopy for PR 16.
Also for NF XV but
with blisters removed.

Downward identity lights
on all models. Underside
of fuselage. These are
marked on Airfix kit.

Red

Green

Amber

The Mosquito excelled in every rôle that it was called upon to perform and although designed as a bomber it met equal, if not greater success, in the fighter rôle especially that of night-fighter. So it is not unfair to claim that as a bomber the Mosquito was the best night-fighter in the world!

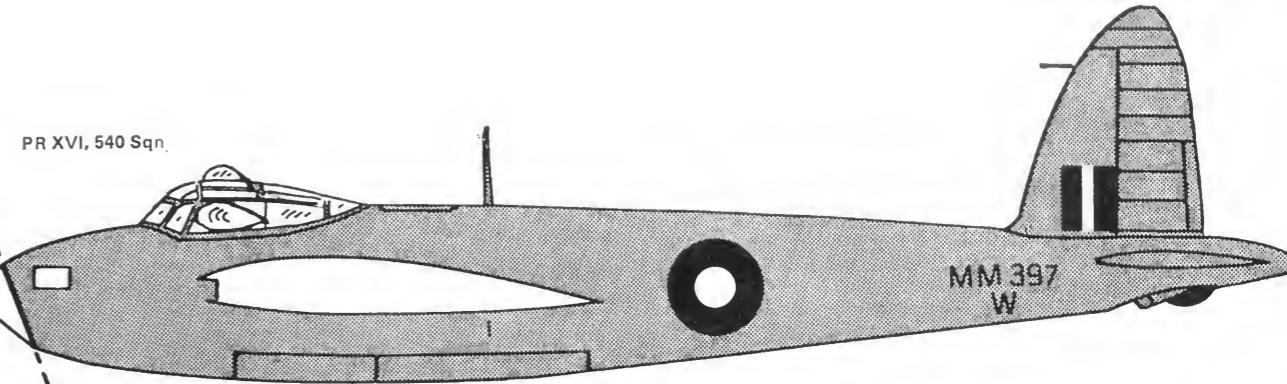
The potential of the aircraft as a fighter had of course been realised by de Havilland who made provision in the original design to produce an armed version and eventually the original 50 were produced as a batch of 20 bombers and 30 fighters. The prototype fighter with reinforced wing-spars and a modified nose, first flew on May 15 1941 and it was this aircraft, equipped with Mk IV AI radar, that was to lay the foundations of the success that was to come in the night-fighting rôle.

Designated NF Mk II the first versions entered service with 23 and 157 Squadrons in May 1942 and met with almost immediate success when 23 Squadron claimed a 'probable' later that month. It is appro-

Fig 1. Deeper nacelle for
Mk 30, PR 16 and Mk XV.



Original intake cut from kit
nacelle and replaced after
deeper radiator has been added.



for the first time in May 1945 the NF 36, and the NF 38—basically the same aircraft with British radar and a post-war development—served RAF night fighter squadrons until the introduction of the Meteor and Vampire night fighters.

These few notes have taken only a very brief look at the Mosquito, since to recall the exploits of the bombers, fighters, intruders, photographic reconnaissance, and other versions, would not only be outside the scope of this article but also fill several magazines. In any case, the Mosquito has been extremely well documented in books, monographs and articles, many of which have appeared from the pen of Mike Bowyer in the pages of *Airfix Magazine*.

The really serious modeller and student will find Martin Sharp and Mike Bowyer's book *Mosquito* a wealth of first-rate information. Aircam have also published one of their well-known colour monographs but care should be taken when using this as some of the colours are suspect and in at least one case a photograph carries the wrong caption. Profile of course have given the Mosquito their attention in numbers 52 and 209, whilst Ducimus have covered camouflage and markings in their mono-

graph of the same name. All these, plus many others will provide the modeller with detail information that will enable him to produce almost any version of the aircraft in the correct colours, and the following conversion may well help in sowing the seeds of many more.

Mosquito PR XVI

In the July 1968 edition Alan Hall covered the conversion of the old Airfix kit into a PR XVI and a PR 34. In that article Alan quite rightly stated that the work involved is not difficult but requires care and patience. Although the new kit gives a much better basis from which to work, the same applies but once one version of this type has been produced a whole new field is opened since the PR XVI requires the clear nose and 'blistered' canopy of the bomber. Moulding of these components can be a major problem but once mastered it is quite possible to produce enough canopies for conversions of the BIV and other similar types to be carried out.

If the Frog kit of the Mosquito can be obtained it is possible to use parts from this kit to overcome the problems encountered





PR XVI NS502:M of 544 Squadron RAF, June 1944. Note black and white invasion stripes on wings and fuselage. 'B' type roundels on upper wing surfaces and fuselage sides only (IWM).

with moulding but work is necessary on the canopy and clear nose to achieve a good fit to the Airfix kit. The Frog canopy is too deep and the bottom edge must be carefully filed to line-up with the Airfix cockpit ledge.

The PR XVI I chose to model did not have the bulged bomb bay that was fitted to some aircraft, so this work will not be detailed here and those readers interested in producing this version should refer to the earlier mentioned July 1968 edition. Assemble the fuselage halves in the normal way then cut off a portion of the nose as shown on the drawing and sand the edges smooth. Mark out the two rectangular windows in the forward nose then drill these out with a $\frac{1}{4}$ inch drill, finishing the work with a small file by turning the drilled holes into the rectangular shape required. Cut the windows from clear plastic card and put these on one side to be inserted after the major work is completed.

Fit a small block of balsa to the nose and shape this to the clear nose cone, sanding it smooth before removing it for moulding purposes. The canopy must be made in the same way but the blisters on either side and the top must be made separately and fitted after completion. The technique of moulding these was covered by Bruce Quarrie's article in the January 1973 edition. If the Frog parts are to be used this work is of course not necessary. Should you be lucky enough to possess a vacuum forming machine such as the Mattel, the canopies can be made in this way or the Frog ones used to produce a supply of them. If the latter course is followed the two halves of the Frog canopy must be vac-formed separately since the blisters will 'trap' the original canopy inside the copy if they are cemented together before vac-forming is started. A word of warning if you use the Frog canopies in this way, copies must under no circumstances be sold as there are very firm laws covering copyright of such components.

The PR XVI was fitted with Merlin 76 engines and it is these that form the other major work in this conversion.

The deeper nacelle with the chin radiator will also be required for the NF 30 and NF XV next month, so the work detailed also covers those versions.

Figure 1 shows the outline of the new nacelle and no doubt modellers will have many ways of approaching the problem all to arrive at a common end. The most laborious is to completely cut off the front part of the nacelle and rebuild with balsa but I found the following method suited my particular needs.

Take a very sharp modelling knife and carefully remove the small intake under the nacelle and put this on one side. Build up

the under-side of the nacelle with body-putty or Green Stuff to the deeper shape, and when this is firmly set carefully sand it to the right profile. To do this it is necessary to cement the two parts of the nacelles together which makes the provision of rotating propellers very difficult. This feature can be achieved by carefully removing the pin section from parts 30 and 52 and cementing these into the backs of the spinners and then locating them in the original holes when the engines are completed. They will not be retained in position and will drop out if the model is handled frequently or suspended from a ceiling display, so unless you feel it is essential to have rotating blades, it is best to cement the spinners direct to the nacelles.

Filler can tend to crumble when the deeper chin radiator is gouged out so to overcome this I found some bombs of the correct depth in my spares box and cut off the nose sections. I then cemented these to the undersides of the nacelles in line with the front and built up the putty around these. It was then possible to clean the putty away and clear any that had filled the new radiator recess. The same result can be obtained by building up a plastic card box in the way used to make the Vokes filter and camera bay on the Hurricane conversions in the October 1972 edition.

Once the new shape has been achieved and before final polishing, refit the earlier removed intakes in the positions shown on the drawings. The cannon troughs should be filled with body putty but the bomb-bay line is left as per the kit. Fit the unshrouded exhausts, parts 40/42, 62/64 and assemble the rest of the model as per the kit using the drop tanks provided.

The camera ports on the underside are located within the bomb-bay area, two to the front either side of the centre-line and two staggered to the rear, the forward one on the port side in line with the wing trailing edge and the rear one just to the right of the centre line.

The model was painted PR Blue which was mixed from equal parts of Humbrol gloss and matt blues with a touch of black, the PR Blue in the NATO range is not the correct shade to use for the PR XVI. Markings came from the ESCI range, sheet 37, which gives those for an aircraft of 680 Squadron complete with the red and white diagonal stripes for the rudder. This aircraft had white wing tanks. The drawing is for an aircraft of 540 Squadron as flown by Flt/Lt G. Watson during 'Operation Paravane' (photographing the Tirpitz) in 1944. It is finished in the same PR blue and has white spinners, the flying owl motif is white whilst the legend is in white. Both aircraft use paddle blades parts 29 and 51. □

EACH OF THE two front walls from your two kits may now be cut as shown by the photograph to provide four side walls. The centre pieces were scrapped. Remove the stub of window sill and projecting corner at the inner angle, both left over from the centre panel.

Cement wall windows in place as usual, glaze and add curtains as desired. Cut a doorway in an original side panel, besides the lower window, and large enough to take the bigger door. Carry this opening up to the beam which forms the lintel over the window, as this will provide sufficient space to fit the doorstep (locating lugs removed). Cement door and step in position, then cement a new side panel at each end, using a $2\frac{1}{2}$ by one inch deep piece of plastic card as a spacer to keep the opposite ends of the sides apart, cementing the spacer up to roof level. I cut a $\frac{1}{2}$ inch square hole in the centre of this panel first, $\frac{1}{2}$ down from the top edge, and inserted a single pane window from the Thatched Cottage kit as a 'light' for the staircase within.

The roof is made by cutting off the two outer slopes, retaining the roof ridge on one, and cementing the two parts together. Add a drainpipe to the front right hand corner and trim off the drainpipe connection at the opposite corner. A chimney assembly was added to the centre of the rear slope, three courses of bricks being removed from the side nearest the ridge to compensate for the slope of the roof.

To the rear wall I added a more modern lean-to, constructed from brick embossed card. The sides are $1\frac{1}{2}$ inches deep by one inch high at the rear and $\frac{7}{10}$ high next to the house. The rear wall is $2\frac{1}{2}$ inches long by $1\frac{1}{2}$ high with a $1 \times \frac{1}{2}$ inch doorway. This extension was capped with a roof of tile embossed card, $2\frac{1}{2}$ wide by $1\frac{1}{2}$.

A second house could be made up in the same manner, except the roof would have to be scratch built. I made a variation, extending the sides with more scratch built panels and beams, thus forming a building with a long sloping rear roof. The additions to the sides measure $2\frac{1}{2}$ high next to the house, sloping down to $1\frac{1}{2}$ at the rear, and are $1\frac{1}{2}$ wide. The rear wall is $2\frac{1}{2}$ with a $1 \times \frac{1}{2}$ doorway.

The town house model on a scenic base with fencing.



AIRFIX magazine



Three more conversions from the Airfix Country Inn kit by Terence Wise

A window was added to each side of this chimney stack I used a stone chimney from the Thatched Cottage set, capped with two pots from the inn chimney, the locating lug trimmed to fit. This makes the house of

buildings for wargames

an earlier date than the first, perhaps late 17th century. Another chimney could be added to one corner of the lean-to-roof, as if from a kitchen range.

A third kit was used to make a two storey 'town' house, the front being made into two end walls as before and the two original side walls being used as front and rear. This does produce a third variation but it wastes a great deal of the kit in order to produce only one building while the methods described above give two larger houses and a full size inn from two kits.

All chimney pots HP2 (German reddish-brown camouflage with black tops): lead flashing on roofs 27 sea grey: guttering and drain pipes black.

All paints are Humbrol. □

Painting guide	1st house	2nd house	Town house
Roof	HM4 Pz Grey (Slates)	Stone paper	32 Red (Tiles)
Chimney stack	HP2 Rcd (Brick)	Stone paper	32 Red
Windows	Black	2 Green	Black
Footings	HP2 Red (Brick)	Stone paper	32 Red
Front door	HM1 & Black	HM1 & Black	HM1 & Black
Back door	HM4 Pz Grey	HM1	40 Granite
Curtains	Orange	Yellow	Buff

Below the first and second house painted and ready for use on the wargames table. The first house is on the left in the photo below and on the right in the photo below right. Note the completely different character given to the second house by the use of stone paper and a chimney from the Thatched Cottage kit.



Penfriends

H. J. Holmes of Highcroft, Albert Promenade, Halifax, W. Yorks, England would like an American or Australian penfriend interested in AFV and car modelling and drag racing.

Witold Skrzypczak of Turniejowa 26, Wroclaw, Poland, is interested in exchanging books, magazines and kits with modellers in the UK.

James Dennison, age 10, of 129 Renall Street, Masterton, New Zealand, would like a penfriend in Australia.

Holger Kissel, of 6301 Fernwald 2/Giessen, Hausener Str. 27, West Germany, would like to hear from any aviation or AFV modeller living in or around Winchester, preferred age 16 or 17. Mr Kissel will be visiting Britain this year and wishes to visit his penfriend.

Pierre Van Buggenhaut, of 56 Avenue John Phillips, of 1650 Teakwood Road, Victoria, British Columbia, Canada, would like a penfriend in England or Australia, aged 10 or 11.

J. S. Nutt, of Hillyfields Estate, Nursling,

des Bouleuse, 1950 Kraainem, Belgium, is interested in 54 mm model soldiers and wishes to exchange kits and books with an English modeller.

E. G. Coyle, of 204 Royal Road, Henderson, Auckland 8, New Zealand, wishes to correspond with modellers in America, Japan, Italy and any other European country with a view to exchanging kits.

Bohumir Hynek, of Sirava III/210, Prerov, Czechoslovakia, is an aircraft modeller who would like to correspond and exchange kits with a British modeller.

Graham Blunt, of 41 Pinfold Lane, Cheslyn Hay, Walsall, Staffs, England, would like an English-speaking penfriend anywhere in the world.

John Phillips, of 1650 Teakwood Road, Victoria, British Columbia, Canada, would like a penfriend in England or Australia, aged 10 or 11.

J. S. Nutt, of Hillyfields Estate, Nursling,

Nr Southampton, Hants, England, wants to exchange British aircraft kits for Second World War Italian and Japanese aircraft with modellers in either of those two countries.

Finally, a request for information: T. Brown, of 173 Chadderton Hall Road, Chadderton, Oldham, Lancs, England, writes: 'In March/April 1945 I was on Course 10B at 1668 Heavy Conversion Unit, RAF Battlesford. At this time we made entries in our flying log books using only the unit letter of the aircraft. I am trying to trace the histories of the Lancasters in which I flew but to do this I need a cross-reference from unit letter to serial number. Official records of HCUs do not give this information. Could any former RAF personnel who served with this unit at this time, or any spotters and enthusiasts who might be able to help, please contact me.' □

Colours review

Part two of our detailed review of interesting aircraft markings and colour schemes seen during Autumn 1972 by Michael J. F. Bowyer

CAMBRIDGE UNIVERSITY Air Squadron provided a grey Chipmunk at Wattisham wearing the usual style of dayglo trim—two bands on the sides of the cowling, four dayglo stripes above each wing tip, dayglo bands along the sides of the rear fuselage and on the tail. The CUAS crest was on both sides of the nose and a pale Cambridge Blue rectangular squadron marking amidships bore a dark blue and very dark red lengthwise band upon which was superimposed the CUAS crest.

Both Hurricanes of the Battle of Britain Flight look much more convincing since LF363:LE-D has acquired wide stroke grey codes and PZ865 wears the trim of the oft pictured DT:A.

There were three Spitfires to be seen. Flying was P7350, a very worthy aeroplane with a long history. She was initially delivered to 266 Squadron on September 6 1940 and took part in operations on September 15 1940 during the afternoon of which she participated in a patrol in the Cambridge area. On October 17 1940, she passed to 603 Squadron and later saw war service with 616 Squadron, 64 Squadron, CGS and 57 OTU. Why her owners have coded her ZH is beyond conception since these letters were only used by 266 Squadron after it had converted to Typhoons at Duxford in 1942. She should, of course, wear the squadron letters UO—and the white letters should be grey.

Guarding Wattisham's gate was Spitfire LF VB EP120, again an aeroplane with quite a long service career. She was first used by 501 Squadron from June 4 1942, joined 19 Squadron September 9 1942, went to 402 Squadron on April 22 1943 and stayed until February 12 1944. 53

Spitfire VB AB871 at Wattisham. Cowl her cannon and she would look as good as new (Photo RAF Wattisham).



Unit marking as carried by the Chipmunks of the Cambridge UAS below the canopy. Base is Cambridge Blue and the two dark lines flank the unit badge.

went to Credenhill, Hereford, on an unknown date and was despatched to Henlow for taxi sequences in the Battle of Britain film on 26.10.67. Next she went to Guildhall Yard on 18.6.69 and arrived at Wattisham 24.9.69. If, as seems likely, she is to be restored to squadron finish, she had best be painted in the markings of 64 Squadron with whom she flew many sorties over France etc during the summer of 1943. Much of her other squadron use was far from the scene of battle.



Wessex HU5 XT771 carries her squadron colours on the rotor pylon. Finish matt dark green overall.

Coleraine for a face lift worried us a little because we wondered whether someone would take it into his head to re-paint her, in some ghastly hue. According to the authorities at Wattisham she is actually BL614, the present serial having been applied in error at Credenhill. Her history, as supplied from Wattisham, is as follows: Initial delivery 8 MU 4.1.42, 611 Squadron 7.2.42, 242 Squadron 2.6.42, 222 Squadron 11.8.42, 64 Squadron 31.3.43, 118 Squadron 25.9.43, 3501 Servicing Unit 2.11.43, and passed to 6 School of Technical Training 6.12.43, where she became 4354M. She probably then went to No 2 STT and passed to Bridgenorth RCC 20.4.48. She

Two Wessex 5s of 707 Squadron were at Wattisham, both matt green overall and with white lettering and numbers. The squadron marking was on the rotor pylon. W:W-XT486 was seen at the 1970 SBAC show. The other was W:M-XT771.

Numerically the commonest sight at Wattisham was, understandably, the Lightning force comprising a selection of aircraft of 111 and 29 Squadrons. Their markings have little altered over the years. No 29 has a 3½ inch wide red outline to white bars flanking the roundel, upon which the 'triple strong' brewer's crosses appear in 1½ inch wide strokes without any black trim. If you are going to model a 29 Squadron Lightning you have no mean task accurately representing squadron colours to scale! No 111 Squadron's aircraft have a white fin disc outlined black with the colours of the squadron badge reversed painted upon it. The Cross of Jerusalem is black and it bears three yellow seaux and is backed by two orange swords. The white field in the marking is meant to represent cloud and the large amount of black stems from this being the squadron's colour. On the nose the black lightning flash remains outlined yellow. Some of the Lightnings had small decorations as a result of visits to other units and airfields, and pilots' names appeared below the cockpits on the port side in black. XP763:P of 29 Squadron bore 'S/L D.O. LUCAS' and

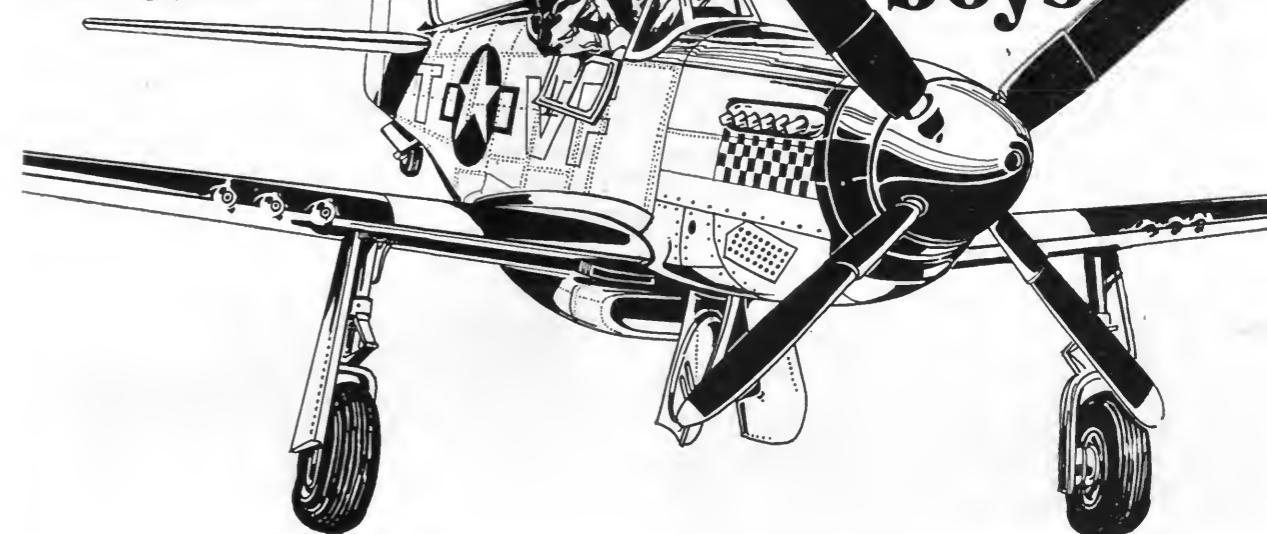
Continued on page 386

On a cold and rainy March day in 1945 to the 335th Fighter Squadron attached to the 8th Army Air Force in England took off on a strafing mission against Prezla aerodrome, 40 miles from Berlin. The outward trip was without incident, but as the squadron swooped down on the aerodrome, Major McKennon's P51 Mustang was hit by flak. His Merlin engine immediately lost all oil pressure and as smoke wisped into the cockpit, McKennon realised that he would have to leave—and quickly.

Pulling the plane hard over into a glide away from the densely populated area, McKennon got ready to go over the side. He pulled the canopy release and tried to push himself clear. Partly in and partly out of the aircraft he found himself caught on the rudder pedals; the plane by this time in a dive. In desperation he tugged and finally tore himself loose and out; just missed the tail of the Mustang; pulled the ripcord and floated down into enemy territory.

He hit the ground and pulled the 'chute off—then raced for some trees on the far side of the field, but then McKennon noticed another Mustang trying to land in the same field he was in. After three tries the Mustang pilot managed to put the 'plane down—no mean feat on a fairly small hayfield, and in enemy territory; and began to make frantic motions for McKennon to come over. McKennon ran towards the aircraft and then recognised George Green, his wing man. Green got out of the cockpit and McKennon climbed in; Green then got into the cockpit on McKennon's lap, dropped the fuel tanks to lighten the load and revved the engine.

Whilst the McKennon pick-up was going on, German soldiers had been converging on the scene and were soon running across the field towards the Mustang, firing as they came. P51's from McKennon's squadron were circling overhead and, as soon as they recognised the new danger, screamed down



on strafing passes, forcing the Germans to run for cover away from Green's Mustang. Green taxied the 'plane to the end of the field and pushed the throttle all the way forward to the firewall and the Mustang started rolling and bumping down the field. The 'plane was double loaded, the field was small, the surface was by no means designed for aircraft landings and a row of trees dominated the 'plane's take-off path. When it looked as though the Mustang must smash itself into the trees, it leaped into the air, undercarriage scraping the top-most branches. On the homeward trip there was very heavy rain and poor visibility low down, forcing McKennon and Green to climb to 15,000 feet before reaching the channel, and the two pilots had to take turns with the only oxygen mask to keep them from blacking out. Less than three hours after leaving the Berlin "airfield" Green's Mustang landed at Debden with both pilots safely aboard.

The P51 Mustang was one of the "bravest" aircraft used in the Second World War and fought in a number of historic

air battles over France, Germany and in the Pacific. This small, highly manoeuvrable 'plane was regarded as a friend to most pilots who flew in them—and they were given highly individualistic names, especially by American pilots. The 'plane became most famous as a long range escort fighter for day-bombing over Europe, though it showed its excellence during every operation that it undertook.

Revell produce three models of the P51 Mustang, two in 1/32nd scale and one in 1/72nd scale. The 1/32nd scale aircraft are the Malcom Hood P51 and the Mustang P51B. The 1/72nd scale aircraft is the P51D with the bubble canopy which was used in the later stages of the war. These are just three of over 230 models produced by Revell, the largest manufacturer of model kits in the world.



a box full of action!

Revell (GB) Ltd., Cranborne Road, Potters Bar, Hertfordshire. Tel: 58261

Two little boys

the Squadron Leader's pennant. It used to be customary for aircraft 'T' on a fighter squadron to be the unit's trainer and in keeping with this policy XS459 was 'T' of 29 Squadron. This squadron, at the time, had received two Mk 6s, and 111 Squadron was scheduled to equip with them in the fairly near future.

Whirlwind 10 XP352 showed itself in the standard all-yellow rescue scheme with black letters and trim, and a Scout in dark green/dark earth camouflage, XR603, had the oft-seen small 'C' type of roundel.

During the flying display Victor BK 1A XA926 performed showing her white fin discs with red '57' superimposed. Nimrod XV242 flew around and had 242 on her fin, a squadron badge on the nose and the usual grey-white finish. An F-111 AF 090 showed that some of the

JT 68 Upper Heyford-based 111s had still to adopt the latest USAF fin coding. A high pass was made by Canberra PR 9 XH175 (grey-grey-light grey) lacking under-wing roundels and featuring the new blue and red type on her fuselage. Wyton seems quickly to have adopted these roundels which are carried also by Victor SR 2s like XM718. A grey-green-black Puma performed, with 'DB' aft of its roundels in black. This was her swan song for, a few days later, she was destroyed in a crash in the Stanford battle area.

Few enthusiasts and readers of this magazine direct their attention only to model making. Many have diverse interests of which model making is one. The room set aside for the Press at Wattisham had, on its walls, panels carrying notes on some of the squadrons which have been based at this airfield and these notes will be of interest to many readers.

Before and during the early months of the war Wattisham was the home of Nos 107 and 110 Squadrons of 2 Group. The Americans later followed, according to the notes given. Before this, No 236 Squadron was based there—from 10.2.42 until it moved to Oulton 3.7.42—flying Beaufighter Is. In March 1942, it sent a detachment to Predannack for the St Nazaire landing.

After the war came the fighter squadrons. No 266 arrived 4.11.46 and No 56 Squadron next day. In the appalling weather of February 1947, the station was forced to

No 92 Squadron Lightning in the new low-visibility finish. This shot taken in Germany, is one of the first in-flight photographs released of a Lightning wearing the new colour scheme.



Above left close-up of the badge of the 32nd TFS as it appeared on an F-4E at Mildenhall. Above a close-up of the tail of Lightning 3 XP765 showing the red and yellow squadron marking (on a white base) of 29 Sqn. The bird emblem has been added by pirates! Below left XP751 'L' of 111 Sqn, a typical machine carrying Firebreaks. Squadron marking appears on the fin disc. Below just how difficult it is to see the red and blue roundels is clear in this photo of XV785 of No 3 Sqn whose emblem appears at the base of the nose.



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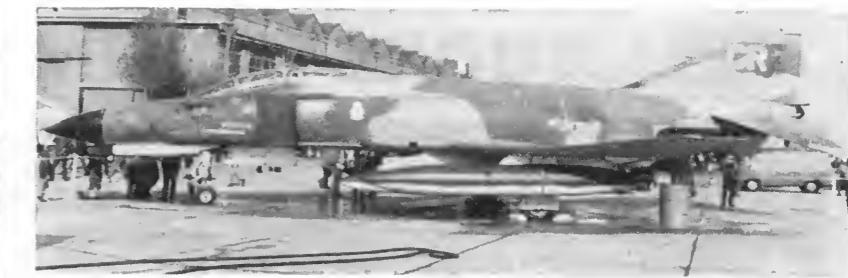
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moved to Stradishall on 28.8.57 and 263 Squadron joined them next day. Further work on runways followed then 111 Squadron moved in during 1958 and 56 Squadron in July 1959. The latter moved out in January 1967, and was replaced by 29 Squadron in May 1967.

I never visit Mildenhall without a strong sense of nostalgia creeping into my thoughts, for it was here in 1935 that I first began a written record of squadron markings, and so forth, when the airfield was festooned with machines lined up for the 1935 Jubilee Review. In recent years it has, without doubt, put on the most interesting Armed Forces Day shows. This year's was more restrained, but even so it was surely the most interesting of the year's set of displays.

Ideal model subjects were the F-4Es of the 32nd TFS Soesterberg. Both wore the usual two-tone green-tan-grey camouflage and still had squadron badges applied to the port air intake. The squadron badge was beautifully reproduced, surmounted by a painting of the Netherlands royal crown. The starboard air intakes featured the badge of the 17th Air Force. On their fins the F-4s carried 'CR' and both had



Above left close-up of the nose of a 29 Sqn Lightning shows the style of her new nose unit markings. Left the marking of No 8 Sqn, Belgian Air Force, on a Mirage at Mildenhall. Colours are blue shield with black and white trim. Above F-4E Phantom AF69/558/CR of the 32nd Tactical Fighter Squadron.

red fin tips—further evidence of how long the changes in markings systems take irrespective of official instructions. This was also evident in the case of some serial numbers where these appeared in full on the tails of US aircraft since, as from March 31 1972, orders were given for the deletion of the 'O-' prefix worn by aircraft of ten years and over in age. This is apparently being done as the aircraft have corrosion checks etc, but clearly the old system is going to survive many months. HH-43F 024536 gave evidence of this, the '43 looking as it has done before but now having an up-rated engine.

Hunters in RAF markings have now been around for eighteen years, but time must be starting to run out on them despite the recent formation of 45 Squadron. XG161, a Mk 6 of 234 Squadron, was at Mildenhall with '55' in black on a yellow fin disc. On her nosewheel door '55' appeared in 7½ inch black numbers. The squadron marking on the nose was outlined by a 1 inch wide band, whilst the white disc carrying a black lion motif had a ½ inch wide blue outline. The red diamonds in the squadron marking have 2½ inch sides, and the overall depth of the marking was 8½ inches. This machine had glossy camouflage and Type D roundels. Also from 229 OCU, but in the white and red markings of 79 Squadron, was another Hunter F 6 XF439 with 26 on her yellow fin discs. Although wearing glossy finish she had blue and red roundels in the standard six positions. All serials were black.

Both Harriers displayed were from the Harrier OCU whose name appeared in

white on the sides of the noses around a yellowish grasshopper. Roundels were blue and red, '57' on the fin of XV757 being in red outlined yellow. '62' was similarly applied to XV762.

From the Royal Netherlands Air Force had come an NF-5B K-4023 of 316 Squadron. It had dark grey/dark green finish with light grey under sides. The serial appeared on the nose and fin in black, and upon the latter was a yellow disc carrying the squadron's black bird motif. The serial was also applied in white directly above the jet tail pipes.

The Belgian Air Force provided two Mirage VBD two seaters of No 8 Squadron both wearing two-tone green-tan/very pale grey camouflage with the unit's blue and white marking on the base of the fin on both its sides. N206 had BD06 on its nose, both markings in pale grey.

Attracting much interest was a Lockheed P-3C-10-LO c/n 5501 US Navy Bureau serial 156507. It hailed from the detachment of VP-49 presently at Keflavik and was wearing the usual light grey US Navy scheme with white fuselage top. Like the USAF, the Navy employs a variety of blacks—very matt, slightly matt, glossy, high gloss etc. Before making an accurate model of any US Navy aircraft one should ideally check the finish of the black on the real aircraft. On her fin 507 had a very large and colourful globe and bird marking and 'LP' in black partly outlined white, like the '31' on the nose. Spinners were black, and the silver propeller blades were tipped white-red-white. Rather surprisingly

Continued on page 390



Mirage VBD No 204 of the Belgian Air Force.

Continued from page 387

she was open for inspection, although the various crew stations were mostly under wraps. It was possible, though, to see the teleprinter through which coded messages pass to interested parties during missions.

When one mentions reserve forces in Britain one is apt to think back to the grand days of the RAuxAF (well recorded, incidentally, in Leslie Hunt's new book, reviewed in January) and it comes hard to think of a reserve formation flying anything like a C-141. But this was the case with C-141A-LM 65-9401 at Mildenhall. Although she carried the legend and badges of the 436th MAW based at Dover AFB, Delaware, she was actually in the hands of a crew of the 912 MAG an Air Force Reserve unit. The 436th has no aircraft, incidentally, it merely supplies crews for them. This machine carried tail badges of both the 436th and 912th.

C-117D 17171 finished in white, grey and silver has long been a Mildenhall resident. She was built as a C-47A-10-DK 42-92722/c/n 12554, transferred to the US Navy as a R4D-5 with the new serial 17171, taken off charge 17.2.44, re-built as a C-117D then re-named an R4D-8 and has been at the Mildenhall Navy Air Facility unit since 1967. Standing by her was an immaculate VT-29B, 51-7899, in an unusual scheme. She had a white fuselage top and grey fuselage and wings. Along her fuselage side was a broad silver band. She had a black nose tip and anti-dazzle area and a very dark blue cheat line. 'UNITED STATES AIR FORCE' appeared along the fuselage roof in a very unusual style. Operated by the 513th TAW, based at Mildenhall, '899 is used for VIP work and has replaced the VC-47. The machine has been in Europe since at least 1953, and at one time was used as a VIP aircraft by the 3rd Air Force.

One of the C-130Es of the temporarily resident 463rd TAW (home base Dyess



Left Northrop NF-5B K-4023 of the Royal Netherlands Air Force. Below C-141A 65-9401 wears two unit badges on her fin.

first principles

Bruce Quarrie

SCALE IS A matter which many of our readers seem to find rather confusing, perhaps understandably, thanks to the multiplicity of different scale models available and the different notations used by different manufacturers. Basically, a scale (eg 1:72, 1/72 or 72nd), to show the three most common ways of expressing it) is a description of the size ratio between the model and the real thing. Thus, a 1:72 scale model is, in fractions, $\frac{1}{72}$ the size of the prototype. Looked at another way, one inch (or mm or ft) on the model represents 72 inches (or mm or ft) on the real thing. Thus one inch on a 1:72 model equals six feet on the prototype. Similarly, a 1:35 scale model is $\frac{1}{35}$ the size of the prototype with one inch on the model representing 35 inches on the real thing. And so on.

There are a number of common scales and some not so common. The best known of them all is undoubtedly 1:72, and the majority of aircraft kits from Airfix, Frog, Revell, Heller, Fujimi and others are to this scale, although occasionally one of them blunders and produces a model which is slightly over or under scale (eg 1:71 or 1:73). Normally this is not apparent to the eye and need not concern you.

The next most popular scale, embracing a number of aircraft and tank kits, is 1:48 (1/48, 48th or 'Quarter-scale'). A fairly large number of kits are available in this scale, but the range is obviously more limited than 1:72. A couple of manufacturers produce kits in 1:50 scale, which is visually compatible with 1:48—in other words, you can mix models of both these scales in your collection and won't notice anything wrong unless you take a ruler to them.

Gradually becoming more popular with the release of more aircraft kits in this large size, 1:32 is the third best-known scale. It corresponds to Gauge 1 in model railways or to the 54 mm scale (see below) used by model soldier manufacturers. A number of aircraft and tank kits are available in this scale.

1:35 is a new scale introduced by Tamiya for their AFV kits. It is not visually compatible with 1:32 and 54 mm model soldiers, but the range is growing so rapidly that the necessity of mixing scales should not arise.

1:76 is the most popular scale for 'wargames' size AFV kits manufactured by Airfix and Fujimi. It corresponds with 00 Gauge model railways and is usually visually compatible with 1:72. The Airfix 'Trackside' series of buildings are also to this scale.

1:86 corresponds to Continental HO gauge. The largest range of models in this scale are the Minitanks used by many wargamers. Not compatible with 1:76. (NB there are a few models in 1:90 scale which is compatible.)

1:96 is a scale used on a few older kits, not widely seen today, and not compatible with anything else really, although you could probably get away with mixing it with 1:100 scale. 1:100 is a relatively new scale introduced by Tamiya in a range of aircraft kits and also used by East German manufacturers.

1:144 scale was introduced by Airfix for their Skyking range of airliner models and has been copied by some Japanese manufacturers. However, outside the Airfix range there is no uniformity, some kits called 1:144 being noticeably bigger or smaller; equally there are some (eg the Nitto Tu 144) which is described as being 1:132 scale but is in fact practically 1:144. The only way to be sure is to take a ruler to your model!

1:200 is a brand-new scale introduced by Skyrrex for their range of miniature tanks for wargamers. The range available at the present time is very limited but should grow fairly rapidly. The original mini-minitanks produced by Leicester, Kirk and Minifigs are to 1:285 or 1:300 scale. Most die-cast models are not produced to a constant scale however (eg Dinky and Corgi) but to a common 'size' and price range. Once again, if there is a particular die-cast model you like and you want to know if it will fit in with your plastic kit collection, you will have to find the dimensions of the real vehicle, measure up the model and work out its scale.

Model soldiers are a class of their own and the names of the scales bear little resemblance to those given for other types of model. The reasons for the model soldier scales date back to when Britains started making their old lead soldiers: these were 2½ inches tall and represented an 'average' man 5 feet 9 inches in height.

This translates to 54 mm in height less headgear. Similarly, 30 mm means a figure 30 mm tall from the bottom of his feet to the top of his head; 25 mm equals 25 mm tall, and so on.

Without going into it all too deeply, basically a 54 mm figure is usually com-

Other ship scales are 1:1200 and 1:3000, both used by Skyrrex in their large range of Napoleonic, ACW, pre-Dreadnought and First World War ships designed for naval wargames.

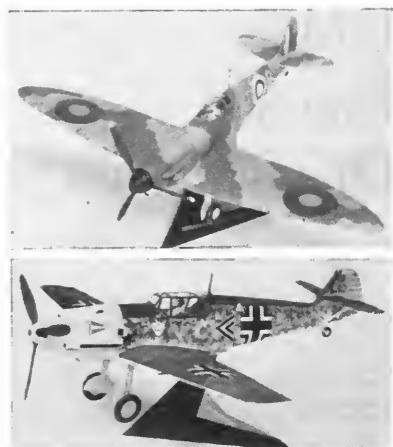
Going back up the 'scale' to the really large kits, 1:24 was introduced by Airfix for their new series of Classic Aircraft kits, which currently includes a Spitfire, Messerschmitt Bf 109 and P-51 Mustang. 1:25 and 1:21 are odd scales favoured by Tamiya for their 'super' tank kits; 1:24 and 1:25 are visually compatible. Similarly, a number of car and motorcycle kits are produced to even larger scales, such as 1:16, 1:12, 1:8 and 1:6.

Moving outside plastics, there are a number of die-cast models produced in odd scales such as 1:43 and 1:45, which matches 0 gauge in railway terms. A good example is the Solido range of tanks. Most die-cast models are not produced to a constant scale however (eg Dinky and Corgi) but to a common 'size' and price range. Once again, if there is a particular die-cast model you like and you want to know if it will fit in with your plastic kit collection, you will have to find the dimensions of the real vehicle, measure up the model and work out its scale.

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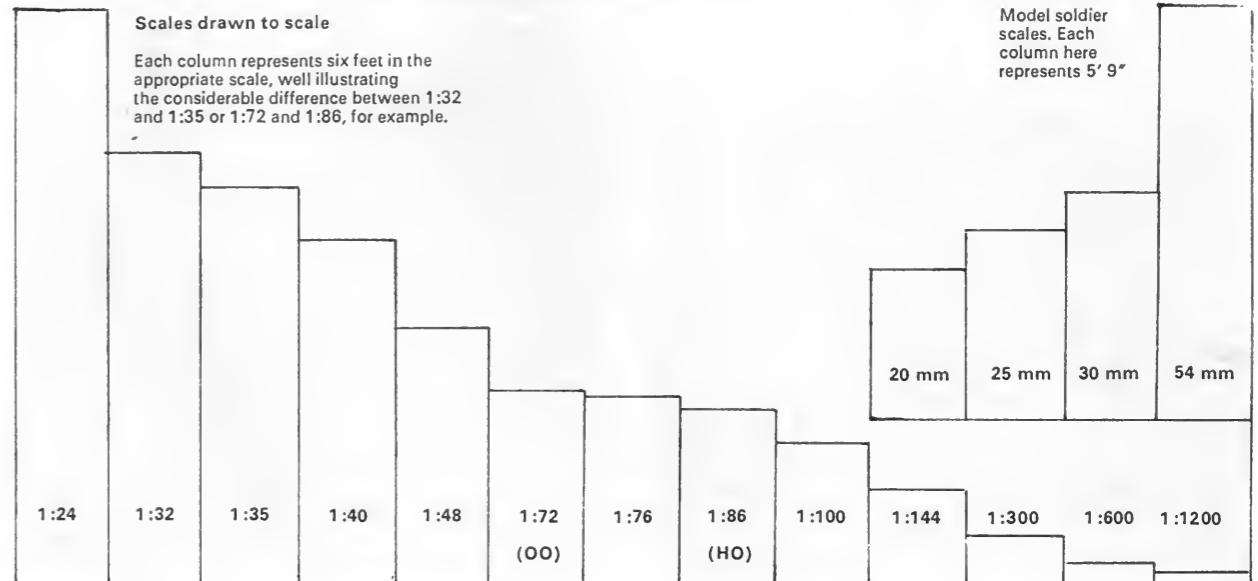


Probably the world's two most popular plastic kits, the Spitfire and Messerschmitt Bf 109. Over 15 different models are available of the Spitfire alone in sizes varying from 1:300 to the huge Airfix 1:24 scale as illustrated here.

pable with 1:32 scale models, a 30 mm figure with 1:56 scale (!), 25 mm with about 1:72 scale (OO) and 20 mm with 1:86 scale (HO). There are other figure ranges including 'Series 77' which is about 1:24 scale, 90 mm which is just over 1:19 scale and, at the other end, the new 5 mm and 15 mm ranges which are approximately 1:360 and 1:120 scale.

In a nutshell, that is it. So next time you want to buy a kit and are not sure of the scale, measure some obvious component (eg the wingspan) with a ruler. Say it comes, for example, to eight inches, and you know the wingspan of the real aircraft was 48 feet. One inch on the model obviously corresponds to six feet on the real aircraft; so the scale must be 1:72. Easy, isn't it? □

Model soldier scales. Each column here represents 5' 9"



IPMS National Championship

Report by Bruce Quarrie

THE IPMS NATIONAL Championships have been and gone again, leaving us with another year in which to work out why our prize model didn't win and try again. The meeting was held in the Falstaff Restaurant in the City of London on December 9 1972 and was very well attended by modellers from all over the country. In fact so many people turned up that visitors were practically standing on each other's heads to see the dozens of fine models on display. Unfortunately the display facilities were not as one might have hoped and models were rather crammed together on the tables, making the judges' task even harder than usual.

Following current IPMS policy, models entered had to be constructed entirely of plastic (except in the case of kits where another material is provided) or, in the case of scratch-built models or modified kits, where it would be reasonable to suppose that other material would be provided if such a kit existed. These rules do not permit the use of wood or metal in a competition entry which is perhaps rather silly since the ruling can force a modeller into extremely complicated modelling processes when a suitably carved piece of balsa would have done the job just as well with half the effort. Still, it is the International Plastic Modeller's Society so one cannot grumble too much.

Entries in most classes were of a very high standard, although surprisingly there was not a particularly good turnout by AFV modellers this year; perhaps all the best models were carefully being hoarded for the Model Engineer Exhibition?

There were two competition categories in each class, the first being for an unmodified kit in its 'out of the box' form (K); the second category being for modified kits (M).

At the end of the day the National Champion 1972 emerged as Birmingham modeller Anthony Buckley, whose superb model of the French 120 gun ship *Royal Louis* richly deserved to win. The John Edwards Memorial Trophy was awarded to C. A. C. Pearson of Hendon for his Airfix 1:24 scale Spitfire: the trophy being presented by Mr John Gray, Managing Director of Airfix Products Limited. The Tony Woollett Trophy for the 'most realistic multi-wing aircraft, any scale' was awarded to V. P. Cook of Swindon for his excellent 1909 Avro Triplane, and the Alfa Romeo Trophy, presented by Les Bouts Motors for the best model of an AR car, went to Keith Williams of Horsham for his Type 158.

Other competition winners were as follows: Class A (Kit) and Class A (Modified)—aircraft smaller than 1:10 scale—both went to C. B. Hall of Bourn for his Boeing 737 and 727 models respectively. Class B (K)—aircraft between 1:109 and 1:85 scale—was won by B. C. French of Swanscombe with his

Westland Sea King; there was no Class B (M) prizewinner. Class C (K)—aircraft between 1:84 and 1:60 scale—went to Norman Whitcomb of London for his Albatross DIII, while Class C (M) was won by Tony Woollett with yet another magnificent 'oldie', a Short Scylla. Class D (K)—aircraft between 1:59 and 1:45 scale—was won by L. Coakley of Dunnington for his B-26C Mitchell; D (M) by 'Mac' Kennaugh of Leamington Spa for his Fw 190D-9. Class E (K)—aircraft larger than 1:45 scale—went to P. Starkings of Leeds for his Grumman F3F-2, while Tony Woollett claimed his second prize in the modified category for his DH 83 Fox Moth. Class F (K)—military equipment larger than 1:30 scale—went to someone who is better known to *Airfix Magazine* readers for his aircraft, Bryan Philpott, with a 1:9 scale BMW R75 motor cycle combination. F (M) was won by J. Bull of Orpington with a Chieftain Mk II. Class G (K)—military equipment between 1:30 and 1:49 scale—was won by B. Guest of Stourbridge with a PzKpfw III, G (M) by W. D. Collic of Orpington with an A7V Sturmpanzer. Class H (K)—military miniatures less than 1:50 scale—was won by Norman Stone of Leicester with an Airfix Crusader; H (M) by D. Blower of Erdington also with a Crusader. Class I (K)—motor vehicles larger than 1:29 scale—went to D. C. Patrick of Well End with his Lola T70; I (M) to R. Priest of Leamington Spa for his Lotus 49B. Class J (K)—motor vehicles 1:30 scale and smaller—was won by Ted Taylor of London with an Airfix 'B' Type bus; J (M) by D. Waugh of Redditch for his 'charabanc'.

Classes K to U (excluding P, Q and R which were left vacant in case of last minute entries not fitting any of the other classifications) included both 'straight from the box' and modified kits, so there was only one winner in each of these classes.

K—hot rods and dragsters, any scale—

Kit Spackman of Derby with his replica of Tommy Ivo's Dragster. L—figures up to 54 mm (or 1:32) scale—S. Barnett of Asplet with a Gothic warrior of 410 AD. M—figures larger than 54 mm scale—P. Staines of Leicester with his ATS Subaltern. N—ships, sail, any scale—Tony Buckley (National Champion)—with his Royal Louis. O—ships, non-sail, any scale—Ted Taylor again, this time with a Tamiya Perkasa MTB. S—miscellaneous—R. Newton of Hadesown with a Fowler Wagon. T—Junior, non-aircraft, any scale—S. Barnett of Nottingham with his lovely military figurine representing a Sassanid Persian Clibanarii: this model also won the National Junior Championship for its proud owner. U—Junior aircraft, any scale—T. Bourke of Cricklewood with a GA Gotspur II.

Finally, the diorama classes: Figure diorama—M. T. Moore of Bromley; Ship diorama—R. D. Hale of Ilford; and Aircraft diorama—G. R. Fraser of Carterton.

There is not room here to mention all the other entrants who received commendations—but if there was a prize for the entrant winning the most prizes it must surely have gone to Tony Woollett who received no less than four commendations on top of his two prizes! 'Mac' Kennaugh followed close on his heels with three commendations to his win. Well done all concerned, especially Bob Jones and the other organisers who made the day such an enjoyable one. □

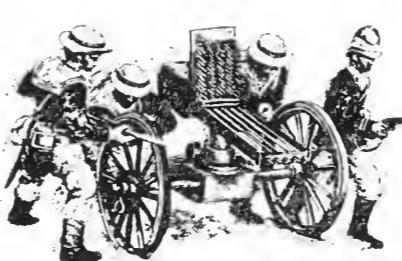


The completed gun team on their base.

PART OF THE reason for the virtual deadlock which existed for more than three years on the Western Front during the First World War was the fact that at this period in military history, defence, in modern armies at any rate, had established a definite superiority over attack. Immensely sophisticated artillery, co-operation with front line infantry, elaborate trench and strong-point systems, skilful use of machine-guns, and the prodigal expenditure of vast amounts of ammunition, made the task of an attacking force almost impossible. Intense artillery bombardment as the prelude to an attack seldom achieved its object, since as soon as the barrage lifted in order for an assault to go in, up would come the defenders from their deep dug-outs and shelters that few shells were powerful enough to penetrate, machine-guns would quickly be set up, and their fire would decimate the attacking troops, who, having struggled over shell-torn terrain through defensive artillery fire, would probably just be attempting to pass through the maze of barbed-wire entanglements in front of their objectives.

Even if the front-line on either side happened to be captured, the trench systems were so organised in depth that the defenders could fall back to several more lines, each as difficult to assault as the first. The defence also had the advantage in that supplies of ammunition and food were readily to hand, whilst everything that the attackers required had either to be carried on the backs of the assault troops themselves, or else brought up with infinite labour over the nightmare of shell-holes, mud, and general destruction caused by the gun-fire of both sides. It took several years for the armies to break out of this deadlock, whilst in the meantime the struggle continued with literally thousands of men paying with their lives for the gain of a few paltry yards of territory, to say nothing of the constant streams of maimed and wounded.

Among the many difficulties attendant upon the planning and execution of a successful assault was the problem of ensuring that once the attacking forces had taken the enemy's front-line, they had sufficient supplies, ammunition, and firepower to consolidate their position until support could be brought up, and to resist the inevitable counter-attacks which would



First World War British Lewis gun team

be made to dislodge them before such support could be received. Here again much complicated work in the way of supporting-fire, signals, emergency barrages and the like was accomplished with the artillery, but the men on the ground needed firepower that they could themselves quickly bring to bear on enemy targets as soon as they occurred, and which could be produced by weapons that they could actually carry with them in the initial assault.

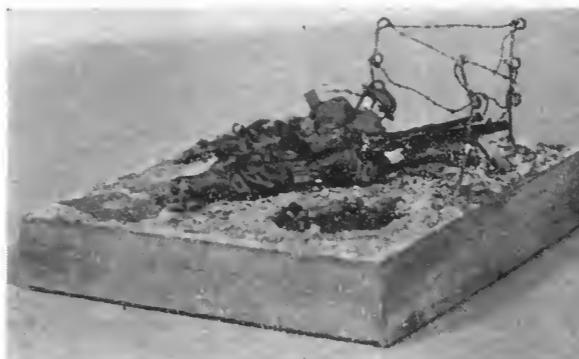
Machine-guns were the obvious solution to this problem of immediate and effective firepower, but in most armies they tended to be somewhat cumbersome, were

Roy Dilley

model soldiers

operated by specially trained men, and could not be used to the best advantage if these men were killed or wounded, since replacements were not easily to be found. In consequence these specialist machine-gunner and guns tended to be augmented by light machine-guns. These were in effect automatic rifles, in the use of which the great bulk of ordinary infantry soldiers had been trained. These light machine-guns were allocated to standard infantry formations, went in with the assault troops, could for the most part be carried and operated by one man if necessary, and provided instant automatic fire when required. Of course they never

Left and below three views of Roy Dilley's converted figures with the Hinchliffe Lewis gun on a diorama base, which has been constructed using fine sand, scenic colouring and small stone chips from the garden. The bottom of the shell holes are painted darker than the rest of the base and thickly coated with semi-matt varnish to simulate puddles of water.



replaced, nor indeed were intended to replace, the machine-gun proper, with its greater effective range and sustained fire, but so effective did they quickly become, that infantry organisation was more and more centred upon their use and support. This practice became firmly established before the end of the Great War, formed the basis of infantry tactics between the wars, continued during the conflict of 1939-45, and in fact has survived as the central point of the infantry practice of the present day.

One of the most effective of the light machine-guns adopted by the Allied Armies was the Lewis Gun. This weapon had been devised by Lieutenant Colonel Lewis of the US Army, an artillery officer, and was originally conceived for use as an aeroplane armament, successful tests having been carried out with it in this rôle as early as 1912, without however any positive reaction from the US Board of Ordnance and Fortifications. Lewis promptly took his guns—he had four made for testing by the US Army—to Europe, where he was much more enthusiastically received, factories to manufacture the weapons being set up initially at Liège in Belgium, and later at the works of the BSA Company in Birmingham, England.

Demonstrations and tests aroused the enthusiasm of even the traditionally conservative officers of the British Army, and practically the entire manufacturing capacity of BSA's plant was devoted to the production of Lewis guns. The British Army adopted the weapon as its first light machine-gun, and many thousands were manufactured to serve with ground troops and to equip aeroplanes of which the potential as fighting machines was becoming realised. Remaining in first line service with the British Army until gradually superseded by the Bren gun during the late 1930s, the Lewis saw plenty of service with the regular forces in the Second World War, and also formed a

large percentage of the automatic weapon equipment of the Home Guard.

Our models this month show a typical British Lewis gun team in action, and consists of the gunner and his 'No 2', who assists him in carrying, loading, and generally maintaining the gun in action. The gun model is the 1:32 scale metal item produced by Hinchliffe Models, and readily obtainable from Hinchliffe agents in the UK. For readers in the US and Canada, a similarly excellent 1:32 scale model of the gun is made by H. R. Products, 9232, Waukegan Road, Morton Grove, Illinois, USA.

Figures for conversion have been taken from the Almark Japanese Infantry set, the Tamiya British Infantry kit, and odds and ends from the scrap box.

Conversion 1: the gunner

Basic figure required is the Almark Japanese Infantryman lying with legs apart.

Trim off all moulding marks and flash, then remove the head, left pouch, and rear pouch and haversack. Carefully cut notches at the inner upper ends of the thighs, and draw the legs together, filling in any gaps with plastic putty or similar, sanding it smooth when completely dry. Select a suitable pair of arms from the sprue or spares-box, and cement them in position as if firing the gun. Reference to the photographs will show what is required, and the arms can be checked for position using the actual gun model.

Next add a steel-helmeted head and small pack from the Tamiya set. These are actually 1:35 scale, but look absolutely right on the Almark figures. Trim the water-bottle to shape (Fig 1), add a mess-tin in its cover, made from scrap, to the rear of the pack (Fig 2), and cut an entrenching tool in its cover from scrap sheet plastic, cementing it in place on the rear of the figure below the belt. Lewis-gunner carried a pistol as personal armament, usually holstered on the left side of the belt, so this should be added, also from scrap (Fig 3). Carve the right-hand pouch to represent one for pistol ammunition. It merely remains to fix a bayonet and entrenching tool handle, made from plastic strip and rod (Fig 4) to the left hip, before attaching the figure to a temporary base for undercoating and painting.

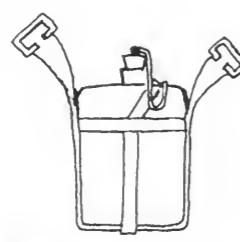


Fig 2



Fig 4

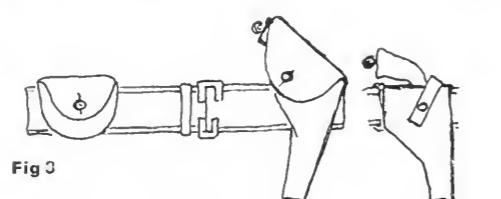


Fig 1 shape of water bottle. The wide strap with buckles passes right round the bottle.

Fig 2 mess tin attached to rear straps of small pack (haversack).

Fig 3 belt. showing ammunition pouch and alternative types of pistol holsters.

Fig 4 bayonet, with entrenching tool handle strapped to the scabbard.

Fig 5 detail and dimensions to show 54 mm scale of Short Magazine Lee Enfield rifle.

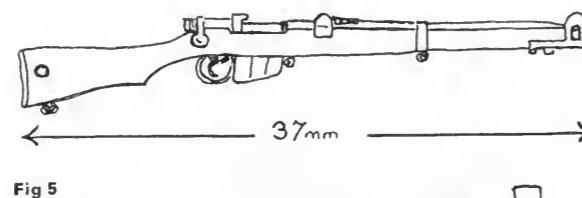


Fig 5

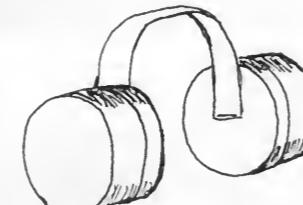
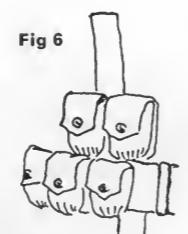


Fig 6 detail of ammunition pouches (right side). A similar set of five pouches was worn on the left side of the belt.

Fig 7 panniers for carrying Lewis gun magazines. Normally carried by the No 2 in action.

Drawings by author.

Conversion 2: the 'No 2'

Basic figure required is the Almark crawling Japanese soldier.

Again trim off all moulding marks and remove head and rear pouch, leaving the haversack in position on the left hip. Replace the head with another from the Tamiya Kit, and also add the pack, mess-tin, and entrenching tool. Sort out a couple of arms similar to those shown in the photographs, and cement them in place, with a spare Lewis-gun ammunition drum in the right hand and the left grasping a Short Lee-Enfield service rifle (Fig 5). Finally attach the entrenching tool handle, and the figure is ready for painting. Since it is in a lying position, pouch detail is not essential, and since British ammunition pouches of this period were quite complicated they are best not attempted unless the modeller is knowledgeable on the subject.

When painting has been completed,

carefully epoxy the Lewis-gun in place on the figure. The little group can then be displayed effectively on a small dioramic base, say 5 inches x 4 inches, representing shell-torn ground with a few wire pickets and strands of barbed wire. Give scope to your imagination in the actual detail of the display stand, which could equally well be part of a ruined house, a shell-hole, etc.

Painting details

Helmets—Pale khaki or grey.

Uniforms—Khaki drab.

Equipment—Pale khaki, or khaki-green.

Boots—Black, well 'muddied'.

Gun—Blue/black semi-gloss with brown stock and grip. □



Ground-level view of the Lewis gun team in action. Barbed wire can be purchased ready-made from Seagull Models or constructed from strands of bared flex. Stanchions are simply paper clips straightened out then bent to the correct shape.

British International Toy Fair—Brighton

Special report on what's new in the kit line for 1973 by Bruce Quarrie

THE BRIGHTON TOY FAIR is traditionally the occasion when manufacturers take the wraps off all their new products and give us a foretaste of the delights to come in the new year. This year's show was no exception and there are a large number of exciting developments in the plastic construction kit field.

Beginning with Airfix, there are a number of forthcoming releases in all the current Series, plus a brand new series of 1:1200 scale waterline ship models for wargamers: first three models in this range will be the *Bismarck*, *Hood* and *HMS Cossack*. The kits will apparently be marketed in 'battle sets', allowing wargamers to recreate the *Bismarck* chase, the Battles of the River Plate and the Atlantic etc.

In the established 1:600 ship kit range there will be a model of HMS *Belfast* as she appeared at the battle of North Cape, and a model of the Russian helicopter carrier *Moskva*. In the Classic Ships series there will be a kit of the French ship *Saint Louis*, built by the same shipyard which built the ill-fated *Wasa*, in 1626.

In the 1:72 scale aircraft range there will be a Cessna O-1 Bird Dog (Series 1); Westland Gazelle (Series 2) and Westland Puma (Series 3); Martin Marauder and Douglas AC-47 Gunship (which will eventually replace the old DC-3 when stocks are exhausted); plus a Canberra B(I)6/B 20 (Series 5).

The 1:24 scale aircraft range will be expanded to include a Hurricane I and a Harrier GR1, the former should be available in the spring, the latter in the autumn.

A Maserati Indy (Series 3) will be added to the cars range and, for motorcycle enthusiasts, a huge 1:8 scale Honda 750 Four will be produced. The 1:76 scale vehicles range will be expanded to include a Matilda tank, the long awaited SAM missile carrier, and an RAF Recovery Set comprising a Bedford OX Queen Mary trailer and a Thornycroft Amazon Coles Crane. The 1:76 scale soft plastic vehicle range will have four new additions—a T-34, Sherman, Elefant and Hannomag with PAK anti-tank gun.

A new idea from Airfix is a series of 'Battlefront' kits, boxed sets of vehicles, figures and diorama bases for budding wargamers representing different forces at famous historical battles: the first four in this range will be German and Allied troops at El Alamein and at D-Day. Paints, a brush, a battle plan and historical notes will be included in each set.

In the 1:32 scale 'soft plastic' range there are sets of British infantry and French Guard Grenadiers of Waterloo vintage, a Cromwell tank and Hannomag half track, a Bamboo house for Far East combat situations and a Desert Outpost for Western Desert battles. For collectors of 54 mm model soldiers there will be a French Old Guard Grenadier of 1815 and a Polish Lancer. Most of these items are described in the new Airfix catalogue, but as usual there will almost certainly be some additions to this list during the year.

Frog had a good display at Brighton, and a large number of new aircraft kits will be on the market from this firm during the year. These include a Gloster Gladiator (Black Series); Sea Venom (Blue Series); Grumman Avenger and Fairey Swordfish (Red Series); Martin Maryland and BAC Jaguar (Green Series); NA Mitchell, Black Widow, Martin Marauder and Canberra B(I)8/12 (Orange Series); and a Neptune—all 1:72 scale.

Revell are rapidly expanding their 1:32 scale range of aircraft kits, and 1973 will see the release of a Beaufighter Mk 1, Me 110-G-4, Luftwaffe Phantom RF-4E, Harrier, Typhoon 1B, Kawasaki Ki 61 'Tony' and Royal Naval Corsair II. Revell are also launching a new range of 1:144 scale combat aircraft of the Second World War at 12p each—good pocket money value—which initially will comprise a Spitfire, Tempest, Typhoon, Hurricane, Bf 109, FW 190, Stuka, Me 262, Mustang, Thunderbolt, Corsair and Hellcat. If these sell well we are promised a further dozen kits before the end of the year. At first sight these tiny models are very appealing although detail is, of course, minimal. However, they could easily be improved and detailed to exhibition standard, and they are certainly going to solve many modellers' storage problems!

A. A. Hales Ltd, importers of many Japanese kits, had a mouth-watering display at the Toy Fair. From Fujimi we are promised a massive expansion to the current 1:76 AFV range which will eventually include a Flak 18 88mm gun complete with diorama base and crew figures; an M4 Sherman; Marder; Elefant; Italian M13/40; Matilda; and Japanese Types 95 and 97 tanks.

Hasegawa are also branching into the 1:76 scale AFV field with an initial range which will include a Willys jeep with American 37 mm anti-tank gun; M2 'Long Tom' artillery piece; Stuart, Lee and Grant tanks; an M3A1 half track and an M4A1 with mortar.

In 1:48 scale there is a new range of Bandai kits which will include a Hetzer, Panther, BMW R75, Kubelwagen, Schwimmwagen, Opel 'Maultier', PzKpfw IV D, Tiger I, Wespe and Hannomag, plus a 1:24 scale King Tiger and Panther G. Bandai are also issuing a 1:24 scale Zero and P-51D Mustang.

From Eidai there is a range of 1:72 scale light aircraft including a Cessna 337, 172, 172 with floats, and 0-2; Beechcraft Bonanza; and Aero Subaru.

Nichimo have a Cessna Skyhawk and an Aero Subaru in massive 1:20 scale, plus a motorised 1:30 scale PzKpfw III Ausf E and Ausf M.

LS will be issuing a number of 1:72 scale Japanese aircraft, including Mitsubishi Ki 67 bomber, Ki 67 Torpedo bomber, Type 96 'Nell' bomber and Type 96 Mk 23 naval version; Ki 109 experimental interceptor, and L3M1 'Nippongo' transport aircraft.

Aurora had very little on display apart from a magnificent new series of Knights of the Round Table—King Arthur, Sir Galahad, Sir Lancelot etc—made from a specially plated plastic which superbly simulates antique armour plate.

Lesney, the 'Matchbox' people, have branched out into the plastic construction kit field with an initial range of ten 1:72 scale aircraft retailing at 23p each. These models are obviously designed with the younger modeller in mind and are moulded in twin-coloured polystyrene which, the makers claim, obviates the need for painting! Serious modellers will of course ignore this—who wants a Spitfire with green fuselage and brown wings? However, anyone providing the plastic modelling field with extra variety is to be welcomed, and these Lesney kits could well be turned into first class models with a little work. First ten releases are a Hawker Fury, Spitfire IX, Boeing P12E (our favourite), Zero, Dornier Alpha, FW 190, Westland Lysander, Gloster Gladiator, Huey Cobra and a StrikeMaster. Decals for two different aircraft are provided in each kit.

Humbrol have redesigned the packaging of many of their paints, and the 'Authentic Colours' series will now be issued with much more detailed painting instructions listing types of aircraft or tanks which wore particular colours, when and how they were applied. Two new additions to their range of metallic colours will be very popular—bronze and a silver-grey colour called 'Silver Fox'. In collaboration with Frog, Humbrol are also issuing a range of kit packs containing a model aircraft, a set of the appropriate authentic colours, decals and painting instructions. This is a very valuable idea since it will encourage younger modellers to paint their models instead of leaving them in their 'natural' state. Congratulations to all concerned.

Obviously there is no space to review any of the above products in depth here, and indeed many of them will not be available until much later in the year. However, we shall try to keep up with the kits as they become available and give you our usual full-scale reviews each month.

NEW kits and models

Tamiya: 1:48 Harrier

TO SAY THE least, this is a superb kit. Its accuracy is first-class and the only thing one could fault is the number and size of the small wing fences on the outer panels. These are too heavy and have to be whittled down with great care and the use of a sharp knife and file.

Fit of the parts is excellent. Apart from glove-like precision they go together in a very logical manner, and although there was a small problem in getting the four jet orifices into the holes provided, the eventual result was most pleasing. The kit is without gimmicks unless you regard the removable panel behind the cockpit to show the engines in this category. In many cases removable panels have their own inherent difficulties in that they do not marry well with the rest of the fuselage, but not in the case of the Tamiya Harrier. The panel fits tightly, leaving only the normal lines associated with this sort of part and does not stick out 'like a sore thumb' when the model is complete. Engine detail is simple but capable of being worked on both in additional parts and in painting.

The cockpit detail is excellent and the canopy can be made to slide. Correct detail here is noteworthy. Similarly, the moulding of the undercarriage is excellent. Parts are supplied so this can be constructed in either the raised or lowered position. The armament selection covers most lethal devices likely to be carried by a Harrier and the kit instructions show how these can be assembled in the correct combinations so as not to produce a rather overloaded aircraft.

Perhaps the best part of the kit, apart from the many other features, is the decal

The Tamiya Harrier.



Drawing 6—omit the rigging blocks (57) at each end of the foreyard.

Drawing 9—instal the bowsprit (35) on the foredeck at as shallow an angle as possible, resting it on top of the hull stern post and cementing it there.

Drawing 10—all the standing rigging should be blackened with Indian ink before installation, to simulate the tar coating.

There are several other points of detail which will help. First, install the shrouds before the backstays and stays. Second, the fore shrouds (note 5 under drawing 10) should be single-knotted around the mast where the two blocks (57) were tied on under drawing 6, *not* installed as drawing 10B. Third, the main shrouds should be taken up through the slot in one side of the crow's nest floor (38), wrapped around the mainmast inside the crow's nest, and led down through the other slot in the floor, following the general pattern of drawing 10C. Fourth, the mizzen shrouds should be made of thin rope, not thick as suggested, and installed, like the fore shrouds, round where the two blocks (57) were earlier tied to the masthead. Fifth, install the two main backstays as shown in drawing 10, then the forestay as in note 1 under drawing 10, but run it from the top of the forecastle to tie off round the bowsprit just ahead of where the spritsail yard is tied on. Finally, install the other forestay and the main topstay as shown in the instructions, tying their upper ends over the shrouds and backstays already in place: the mainstay is put in last.

Drawing 12—the two blocks for the spritsail lifts should be tied, one each side, to the outer tip of the bowsprit, *not* to the stay as shown. The run of ropes remains basically the same, however.

Drawing 13B—the foresail brace lines are wrong. Take the two rigging blocks saved from the ends of the foreyard and tie them side by side under the mainstay roughly level with the centre of the cross on the mainsail. Tie one end of an 18 inch length of rope to one tip of the foreyard, thread it down through one of the rigging blocks just installed, lead it forward under the mainstay and tie it off to the cleat at the foot of the forecastle. Then repeat the process using the other end of the yard, the other block and the other cleat.

Three further small details will add considerably to the accuracy of the rig: mizzenyard—tie a rigging block (57) to the rear centre top rail of the crow's nest. Tie a 15 inch length of thin rope to either cleat at the foot of the mainmast, thread it up through this block at the crow's nest, lead it aft towards the mizzenyard, and tie a rigging block (57) to its end: this rigging block should be $\frac{1}{2}$ inch from the upper tip of the mizzenyard. Tie a short length of thin rope to the outer tip of this yard, thread it forward through the block and tie it off on the mizzenyard about $\frac{1}{2}$ inch down from its starting point. The installation at this point

Continued on page 398

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(Above): Frog/Hasegawa kit finished as F-100D 56-3000 "Triple Zilch", of the 20th TFW, Weatherfield, U.K. circa 1960. Markings from Set No. 3

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'MODELDECAL' style fully illustrated instruction sheet, giving decal locations and full colour scheme details, is included with all Modeldecals, and commencing with set No. 17, a selection of photographs is also included.

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Continued from page 396

should look like the outer tip of the bowsprit, but with only one block used here.

Main bowlines—punch a needle hole through the mainsail halfway down its left-hand side and close to the edge; punch another hole in the same place on the right-hand side of the sail. Pass one end of a 20 inch length of thin rope backwards through one of these holes, make a knot in the end, pull this up tight behind the sail and keep it in place with a drop of cement. Take the free end of the rope forward in a straight line to the bowsprit just inside the ship's stem (threading it between the foremast and the fore shrouds), tie it round the bowsprit, and lead the end in a straight line back and through the other hole in the sail, tying it off with a knot cemented behind the sail. Cut off any surplus thread.

Fore bowlines—install as for the main bowlines above, with a thin rope from halfway down one side of the foresail, tied round the bowsprit just below the spritsail yard, and led back to halfway down the other side of the foresail.

Do all this correctly and you will be rewarded with a really excellent model for the modest outlay of £1.22.

Minifigs: Ancients

MINIATURE FIGURINES' 'Macedonian and Punic War' range is, by any standards, vast and widely embracing. It comprises some 70 pieces, including war-elephants, but our review must by limitations of space be selective.

Perhaps we should mention first the personality figures, which in representing actual historical persons, are unique in Ancient period wargaming. Of these, Scipio is a particularly fine figure—every mm a general. In all there are at present eight of these personalities, including Alexander the Great and Hannibal; it is to be hoped that this range will be extended.

By far our favourite of those figures received for review is the African war elephant, complete with howdah and mahout. The actual elephant, in quilted armour, comes in three pieces—two body halves and trunk, a little work being required to ensure no gaps appear down the spine when the halves are assembled. The completed beast is an impressive and fearsome addition to any ancient wargame army.

Of the foot figures, our favourite is the South Gaulish swordsman, an aggressive warrior in flowing cloak. Also particularly good figures are the Macedonian and Roman standard bearers, Thracian peltast and Roman hastatus. Light troops are also represented, the best without doubt being the Greek javelinman with a crescent shield, about to hurl his missile as he runs.

Looking now at the cavalry, the most noticeable figure is the Thracian light cavalryman, simply because of the remarkably long *sarissa* or *kontos* that he

wields, over three inches long on the model. The most original figure is a barbaric-looking Selucid camel rider, whilst the most impressive is a Carthaginian nobleman.

Basically, all the figures are fine, well-scaled mouldings, noticeably free of flash. The thickness of spears varies, depending on the length so that the longest spears are thickest; although this might not appeal to some people on aesthetic grounds, it does at least ensure a spear that is always straight and, even more important, one that is extremely difficult to break—a very important factor with wargame figures.

The horses, by the way, are new, replacing those originally issued with this range. Neville Dickinson of Minifigs explains that although the first batch of horses were technically the correct size and scale, they gave the impression of being too small for their riders. The new horses are therefore scaled-up a fraction to correct this optical illusion.

To sum up, an excellent range. Those wargamers not yet possessing ancient period armies will be persuaded to start now or never, whilst those already commanding such armies could very well be persuaded to enlarge or replace them.

Our review figures came from Miniature Figurines themselves, from whom a catalogue is available for 25p. Their address is Miniature Figurines Ltd, 28/32 Northam Road, Southampton SO2 0NZ, Hants.

Revell: 1:32 Phantom

THE GROWING popularity of large scale kits is arousing considerable controversy in modelling circles, arguments raging fast and furious about the size of these kits being too cumbersome to allow a large collection against those which say you won't need such a large collection anyway because a large-scale kit should take proportionately longer to finish, etc. Without entering into this, one fact that cannot be denied is that large kits make good commercial sense since little fingers can assemble big pieces easier than little pieces. This can only be a good thing, because it attracts more youngsters (and their fathers) to our ranks!

Unfortunately, Revell appear to have designed this kit exclusively for the toy market, down to a price rather than up to a standard, and no concessions have been made to the requirements of today's serious modellers. This is somewhat disheartening since it may well make people think twice about purchasing further releases in the range—and there are some models coming, for instance a Harrier, Beaufighter and Me 110, which could be real winners if designed properly.

Looked at on one level, as a toy pure and simple, Revell's new Phantom is an undoubtedly success. There are fewer parts than in many 1:72 scale kits and assembly is a very simple job if you are not bothered about accuracy. The removable engine gimmick works well, but the wing folding mechanism requires some attention to make it operate smoothly. The canopies open and shut accurately, but the lack of underwing stores apart from the Sparrow missiles is a disappointment and results in a rather 'bare' looking model.



Revell's 1:32 Phantom. Since reviewing this kit we have heard from the manufacturers that in fact the moulds have been extensively re-tooled and many of the criticisms voiced here may now have been corrected. However, we have not yet seen one of these revised kits.

tion to make it operate smoothly. The canopies open and shut accurately, but the lack of underwing stores apart from the Sparrow missiles is a disappointment and results in a rather 'bare' looking model.

On the other level, looked at as a scale model, the kit is disappointing. There is not space here to detail all the alterations needed, but the following résumé, used in conjunction with a good set of scale drawings, should enable most competent modellers to turn out a reasonable model.

First, the nose ram air intakes are completely wrong and new ones should be built from scratch. The fit of the intake duct fairings is poor and requires extensive filling. The perforations on the intake ramp plate are not shown, although these are very noticeable on the real aircraft. Hinge markings for control surfaces also need some attention to get them right. An error in marking the spoilers on the underside of the wings has resulted in the main wheel doors being the wrong shape. At the rear of the fuselage there is detail missing from the tailplane pivot cover plate. The fairings on the underside of the wing dihedral break are much too deep and should be thinned down to a third their depth as moulded. If the folding wing mechanism is dispensed with, correct hinge detail can be added along the upper surface of the wing dihedral break—those supplied are definitely not to scale!

The cockpit requires a fair bit of work, addition of throttle levers and switches on the side consoles and virtually complete re-working of the Martin Baker HA Mk 5 ejection seat being needed. The landing gear also needs attention: the anti-torque links on the nose leg have to be replaced, a smaller nosewheel steering motor being required, thicker main wheel drag braces wanted, and the shape of the mainwheel doors needing alteration.

As usual with Revell, decals are sparse, this kit containing a set for only one aircraft—BuAe No 155553 of VF 33 on USS *America*. Although well printed, even these could have been improved by the addition of detail markings, stencils, etc. Colouring instructions (except for the ejection seats) are generally accurate, however, and if you are prepared to put in a bit of work a reasonable model is possible. It is certainly large enough for its price of £1.95 and even in its unmodified form well captures the general 'feel' of this lethal-looking aircraft.

AIRFIX magazine

BOOKS for modellers

Aviation

A History of Basic Observer and Navigator Training since 1914. Navigation History, RAF Finningley, Doncaster, Yorks. Price 30p. Please make cheques or postal orders payable to the 'Battle of Britain Account'.

THIS FASCINATING booklet, prepared by Flt Lt C. G. Jefford, is well worth acquiring. It covers a hitherto unrecorded topic, and does it in considerable detail. The booklet commences with a brief, yet quite comprehensive, survey of basic observer and navigator training in the Royal Air Force since 1914. Photographs show the types of aircraft used, and illustrate very clearly how complex the whole business has become, from simple map reading to the use of the navigation simulator at Finningley.

Most interesting, probably, are the appendices. First, the history of 6 FTS is detailed, then come individual appendices for each main group of navigation training schools spanning the period 1938 to 1972. For the first time in published form here is a listing of the CANSS, AOSs, AONSs, BGs (and what an array of fascinating aircraft they flew!), (O) AFUs and ANSs. Bases and dates of existence are given, along with notes on the types of aircraft flown. On the back cover appears a very useful map showing the airfields where the multiplicity of units were based.

This, then, is a most useful booklet to acquire: but if you decide to obtain one you had better work fast, because supplies are rather limited.

Janes' All the World's Aircraft 1938, compiled and edited by C. G. Grey and Leonard Bridgeman. A reprint by David & Charles (Holdings) Ltd, South Devon House, Newton Abbott, Devon. Price £12.60.

JANES' ALL THE WORLD'S AIRCRAFT yearbooks should need little introduction to readers, for they are internationally accepted as the most comprehensive and authoritative works on aviation. This reproduction of the 1938 edition constitutes one of the most ambitious facsimiles yet to appear and it is gratifying to see it has been tackled so accurately and competently. The quality of reproduction is good and the publishers have shown their integrity in giving a truly faithful reproduction within the covers by not only including the aero-engine supplement of over a hundred pages, but the 90 pages of advertisements.

The publishers have already reprinted the 1919 and 1945/46 editions, since they contain the flood of releases of information and pictures after censorship during the two World Wars. If any other year be chosen then surely 1938 would be high on any popularity poll in the modelling world. This year was the peak of the biplane era—Hart, Gladiator, Henschel Hs 123, Curtiss Hawk etc, and saw the introduction into service of the Spitfire,

The reviewer would have preferred to have seen the missiles grouped together



New from Profile

249. Douglas R4D's DC-3/C—47's

Arthur "Dakota-Joe" Pearcy Jnr, lovingly records the development and roles of the US Navy's military DC-3's and super DC-3's—including rocket-assisted carrier take-off for Antarctica operations. An all-time "great" now colourfully captured in USN markings. Not to be missed! Price 40p

54. Japanese Combat Cars, Light Tanks and Tankettes

By Lieut.-General Tomio Hara. From the Sumida armoured track of 1928, through the amphibious half track of 1930, the Type 92 Heavy Combat Car (which "paved the path to many epoch-making tank technologies"), the railroad armoured tractors, the Type 95 and Type 98 Light Tanks and their modified versions, to the Type 94 and Type 97 Tankettes. Written by the man who played a prominent part in Japanese tank design, this *Profile* corrects many of the designation errors and false ideas about the concepts behind these developments which are prevalent in the few Western writings on pre-1945 Japanese AFV's. Price 40p

32. Brighton Gladstones

Stroudley's yellow 0-4-2 tender express engines, with 6 ft. 6 in. wheels leading, were always a source of astonishment in working fast trains of a weight and speed for which other companies required a leading bogie and eight wheels. Yet the 36 Gladstones had effective careers of 20-25 years on the Eastbourne, Brighton and Portsmouth main trains, and never came to grief. Price 45p

32. HMS Cavalier

The British built most of their wartime destroyers to a standard design and one of them, HMS Cavalier survived to become the Royal Navy's last operational destroyer in 1972. This class typifies the British destroyer of the last 30 years, both in armament and in operational history. Written by Anthony Preston, Warships Series Editor. Price 50p

18. Enfield Rifle, Part II

In the second *Profile* on Enfield weapons the author traces the first of the breech loading Enfield fire arms. These weapons carried Britain through many troubled times. Price 40p

6. Alfa Romeo Type B

By Peter Hull, Italy's classic Grand Prix car of the early 'thirties', which won many races in the hands of immortal drivers like Nuvolari, Varzi and Chiron, was the last winner in the vintage tradition before the new age of science and professionalism in G.P. racing took over, heralded by the all-conquering German Mercedes and Auto-Unions. Price 50p

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Bf 109, B-17 etc; in fact most of the aircraft operational in the early war years—with the marked exception of the Ju 88 which Germany managed to keep quiet.

1938 was before upmanship had developed to the extent of producing a book a year before its stated date, eg the 1972/73 Janes' goes to press during 1972, but in those days the book did not go to press until the year of its title was out, and this volume first appeared early in 1939.

The scope of Janes' was then much wider than it is today. Apart from information on the various types of aircraft worldwide, it had civil and service sections for all the countries of the world, setting out details of all airfields, flying clubs, airlines, service organisation etc, all illustrated. The British section contains a listing by groups of all RAF squadrons and their locations at home and abroad. So that it is an aeronautical directory of 1938, not just a directory of aircraft types and as such it displays a variety of aircraft in various marking schemes of the various nations.

The price of £12.60 may seem high, but for a book of such solid worth, weighing nearly five pounds, containing well over a thousand photographs (exclusive of those shown in advertisements), many drawings and maps, the price is not high relatively. Moreover, prices have risen well over ten times 1938 prices, and it was originally over £2—to be precise 42 shillings.

Perhaps a little strange, in view of the close following of the original inside, is the treatment of the cover. Instead of the standard Janes' blue, a green backing has been used and the titling appears along the spine in present Janes' fashion, not across in the styling first started in 1924 which continued until recent years, so that it is the odd man out on the shelf alongside the original preceding and succeeding volumes. Also, a modern style dust cover belies the true vintage content, and the woolly picture thereon does less than justice to the overall high standard of reproduction inside.

Aircraft in Profile Vol II. Profile Publications Ltd, Sheet Street, Windsor, Berks. Price £6.00

A MONTHLY EVENT awaited with anticipation by most aircraft enthusiasts is the publication of each new Profile, and it always seems that the latest is better than the last. To maintain such a standard is a wonderful achievement by the artists, authors and publishers, so it is fitting that Vol II brings together in one handy book Profiles 223 to 234.

No matter how much care one takes with the single Profiles, constant reference tends to make them a little worse for wear after some use, so the bound volumes enable each edition to be kept in mint condition and easily findable form. The trend seems to be for those who are modellers to use individual copies for their modelling activity and keep the bound ones on the bookshelf for more leisurely reading and reference.

Volume II contains over 100,000 words and more than 500 photographs of the 12 aircraft described. In addition there is an index as well as a quick reference to all preceding Profiles by country of origination. A further advantage over the single items is that errors that have been brought to the publishers' notice are documented in relation to each Profile contained within the hard covers. Three American, two British, three German, and single items from France, Japan, Italy and Poland, give this volume a truly international flavour and if a colour scheme for the Hercules or one of the Lublin R-XIII variants has eluded you, then it can be found within the covers of this book.

The artwork is to the usual high standard now expected from Profile and the publication of subsequent volumes is sure to add more 'Red Letter' days to the lives of aircraft enthusiasts.

Priced at £6.00 Vol II represents very good value for money since to buy the 12 individual Profiles would have cost over £4.00 and it would be quite impossible to get such a high standard of binding for the £2.00 or so balance.

Aircraft Profile No 240: The Fairey Barracuda Mk I-V, by David Brown. Profile Publications Ltd, Coburg House, Sheet Street, Windsor, Berks. Price 40p.

THE UNGAINLY Barracuda holds a mysterious fascination for many modellers and this latest Fleet Air Arm Profile should provide enough pictorial content to enable a variety of finishes to be applied to the Frog kit. There are 24 pages in all, including four in colour. The artist is P. Endsleigh-Castle, who should know his stuff! It is surprising, therefore, to see the first prototype Barracuda depicted as wearing black outlined roundels! Surely these should be yellow outlined? (In black and white the yellow outline looks black when Ortho film is used). The fin markings on the centre spread are also rather suspect (the blue is usually to the rear on both sides).

Again one could say that there are too many 'standard' photos of ex-works machines. It would have been nice to have seen illustrations depicting more camouflage and squadron markings. Nevertheless, the author has produced a very interesting account of this strange aircraft. Excellent value at only 40p.

Military

Tank Data 3, by Harold E. Johnson. UK, British Commonwealth and European Publishers and Distributors: Patrick Stephens Limited, 9 Ely Place, London EC1N 6SQ. Price £4.80.

THIS THIRD VOLUME in the popular Tank Data series follows closely the format and style of its two predecessors. The main section of the book is devoted to large photographs, brief historical notes and extensive technical data on specific vehicles. In this volume, these range from the Christie 1921 model Gun Motor Car-

riage to the modern German MBT 'Leopard', although the emphasis is on Second World War Vehicles. British, French, German, Russian and American tanks, armoured cars and self-propelled guns get the lion's share of coverage, but there are also pages on the Italian Carri Armati Fiat Tipo 3000A light tank, the Polish TK-S light tank and the Swiss Pz 58 medium tank.

A full list of the vehicles covered would be impractical here, but the book covers all the main French AMX-13 types, personnel carriers, self-propelled guns and the Model 55 recovery vehicle; the British Saracen, Saladin, Comet Mk I, Valentine III and Churchill 'Crocodile'; the Canadian Ram Tank; German armoured cars (SdKfz 234/2, 233 and 251/22), self-propelled guns, Flakpanzer IV Mobelwagen, Maultier rocket launcher, Panther recovery and munitions carrier versions and others; Russian T-35 and T-28 series heavy tanks; American scout and armoured cars, self-propelled guns (T70, T32, T165, T40, T24, T6 etc) tanks and amphibious vehicles. Most of the vehicles are illustrated by one large whole-page photograph (9 inches × 6 inches) but some have two or three smaller illustrations. Quality of the photographs is on the whole reasonable and modellers will find numerous useful details readily visible.

In many ways the second part of the book, 'Tanks in cross-section' is even more useful, since it includes scale drawings and photographs of a number of other vehicles, mainly Russian (including the T-35, T-28, JS II, JSU 152, KV-1 and BT-7). Incidentally, the three-view illustrations of these Soviet vehicles appear to have originated from Russia since the captions are printed in Cyrillic script—and whoever wrote the English captions beneath obviously doesn't understand this so the JS II, for example, is described as a 'backward NC-2' . . . However, the illustrations themselves are what matters since they provide ample scope for modellers wishing to add to their collection of Soviet AFVs.

Tank Data 3 ends with a section of photos on early German armour; on captured vehicles in German service; and on Axis armour in general including Italian and Japanese vehicles. There is a final, and very useful, section on tank armament which includes diagrams and photographs illustrating main and secondary guns. This includes original scale plans of the German 37 mm, 88 mm KwK 36 and 88 mm KwK 43.

All in all rather a strange miscellany of information but there should be something here to interest most AFV enthusiasts. One fact worth pointing out, especially for wargamers, is that the data published on individual vehicles is the original test data recorded at the Aberdeen Proving Grounds in America, so it is unquestionably authentic and more reliable as a guide to a vehicle's capabilities than some of the other data tables one sometimes sees based on wartime information and opinion.

Letters to the Editor

Carbon tet

I AM EMPLOYED by the British Steel Corporation as a Quality Control Technician. During the course of my studies it has come to my attention that the commonly used modelling material, carbon tet, is regarded as a 'moderate health risk.' The BSC publication states that: '(a) carbon tetrachloride is a narcotic causing drowsiness and unconsciousness; (b) a dangerous liver and kidney poison; (c) may be converted to the poison gas phosgene by the action of heat or by smoking; and (d) is absorbed into the body by inhalation, by mouth or through unbroken skin.'

If carbon tet is to be used at all it should preferably be used in the open air or in a well ventilated room well away from any heat source (including fires, soldering irons, Pyrogravures etc). No smoking should be allowed in its presence.

An alternative to carbon tet which can be used for melting plastic scrap is ordinary acetone, which has a low toxicity even in high concentrations. It is, however, very volatile and the same precautions regarding heat and smoking should be observed.

George E. Gwynn, Cwmbran, Mon.

Hal-Far Gladiators

IN HIS EXCELLENT monograph on the Gloster Gladiator published in 1964, Francis K. Mason gives all the relevant facts concerning this aircraft and should dispel the continuous conjecture which seems to afflict some of your readers.

Having served at Hal-Far I can corroborate most of the information given by Mr Mason. There were of course 18 Sea Gladiators, not four; crated, delivered to Kalafrana Seaplane Base in September 1939, bearing the serial numbers N5518-35. Visiting carriers had by May 1940 pinched N5532-35 and in June and July N5519, 20, 23, 24, 29 and 31 were assembled as a fighter flight with 5518, 21, 22, 25, 26, 27, 28 and 30 held in reserve.

Wastage and modifications were of course legion and it was a clever fitter who knew which engine belonged to which aircraft, by about August!

The much maligned Messrs Philpot & King were quite right to omit the deck

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arrester hook, as aircraft in use by the flight had naval gear removed, thereby increasing the speed by about six knots.

The Gladiator fuselage preserved in Valetta is most certainly not N5520, which went up with a spectacular bang, quite early on.

Close inspection shows that the airframe identity numbers have been removed, and as the deck arrester hook is still in place this machine was probably the last of the cannibalized spares.

I'm sure Mr Weaver didn't mean to be rude, but I rather resent the suggestion that the Kalafrana Glads were discovered! They were husbanded and protected like rare birds from Sept 1939 until June 1940! We rather thought the Italians would turn nasty so we kept them pretty well in trim, and were most put out when HMS Glorious took three away in May (N5532-34).

Regarding the otherwise excellent conversion in the May 1972 issue, I don't think any of the Malta Gladiators had such large spinners.
C. D. Comber, Lindfield, Sussex.

Lightning changes

AS BAC LIGHTNINGs have always been my favourite aircraft, I was naturally very interested in the December 'In the air' article. May I add some further informa-

tion which I think will interest modellers of modern RAF aircraft?

First, Nos 29 and 111 Sqns are at the moment changing their F Mk 3s for the F Mk 6s of 5 and 11 Sqns. This is taking place so as to give pilots and groundcrew experience in the different marks of front-line Lightnings. Secondly, when this change is completed, Nos 5 and 11 Sqns will then move to RAF Leconfield, Yorks, and will stay there from about June until late August or early September, while Binbrook's runways are re-surfaced. 226 OCU, which is at present stationed at Binbrook because of Coltishall's modifications, will also move to Leconfield.

The TFF aircraft at Wattisham in 1969 carried on their fins a black eagle, with red detailing, rising from a yellow galleon set on a white disc. This was carried in the position that the cat emblem is in the photograph on page 187. The cat emblem was carried just above the fin stripes which were then in the standard position used by RAF Lightnings, and not in the sweptback position as in the above mentioned picture.

The aircraft carried the same nose marking as they do now, and were as follows: XM163:A, which was replaced by XM147:A (ex-C); XM136:B, which was replaced by XM144:B. XM147 was re-coded 'A' in May 1969.

Finally, I would like to point out that the aircraft XM177 captioned as an F 1 is in fact an F Mk 1A, although this has probably been noticed already by other readers (it has!—Ed).

Alan Wragg, Hull, Yorks.

Canberra colours

I READ WITH interest T. J. Huxley's letter regarding Lightning F 2A XN786:M, a photograph of which appeared in Aircraft Illustrated, October 1972. Of the types that I have seen wearing the new red/blue roundels the most interesting was Canberra T 17 of 360 sqn at Cottesmore on June 17 1972. Overall finish was matt, the standard dark grey/dark green/light grey finish with black nose. It wore its 8 inch serial, WK102, on the rear fuselage in black and had the white letter 'A' at the base of the fin. Of special interest was the fin marking which consisted of '360' in blue superimposed on a red lightning flash, all on a white background.

A. R. Porter, Peterborough.

Thanks to my good friend Andy Heape, here is a picture of the last TREK Constellation, L-1649A Starline ZS-DVJ, c/n 1042 (ex-Lufthansa) flown to a specially prepared runway at 'Little Kariba' holiday resort from Jan Smuts airport on October 9, 1971, to be an attraction for visitors.

Leslie Hunt, Leigh-on-Sea.



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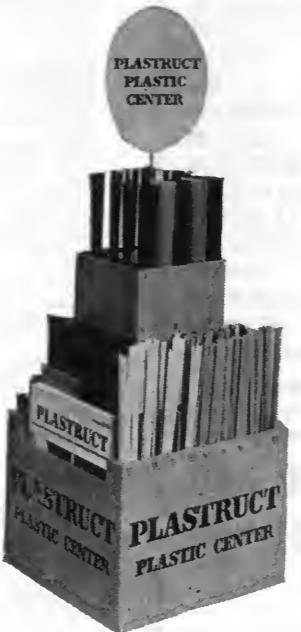
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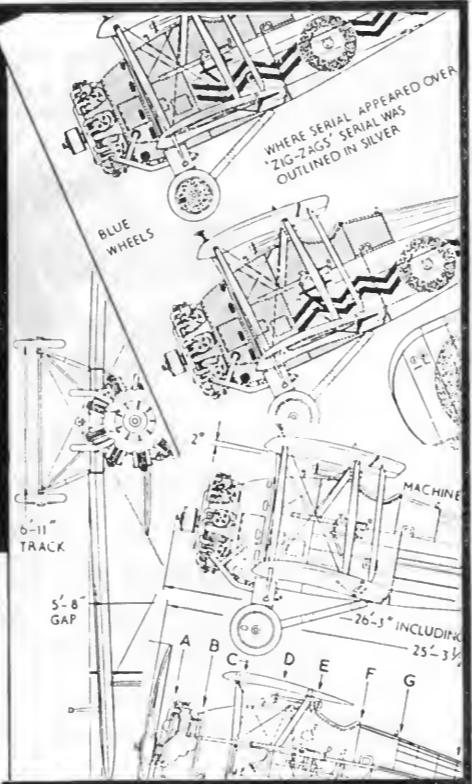
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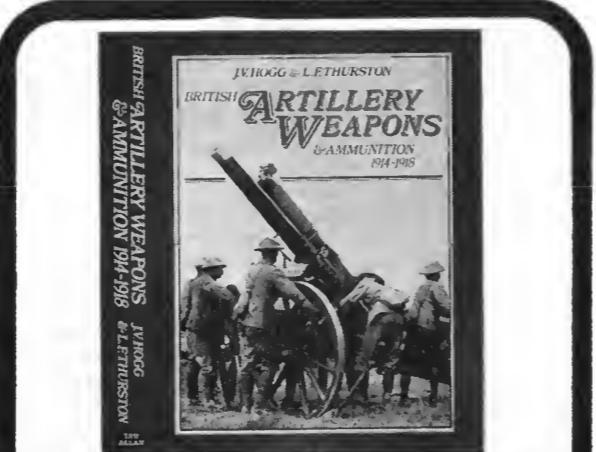
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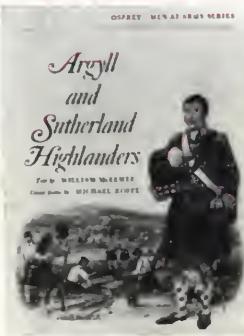


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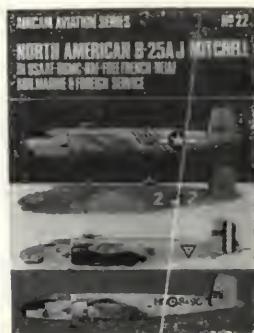


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